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DISEASES *of the* NERVOUS SYSTEM

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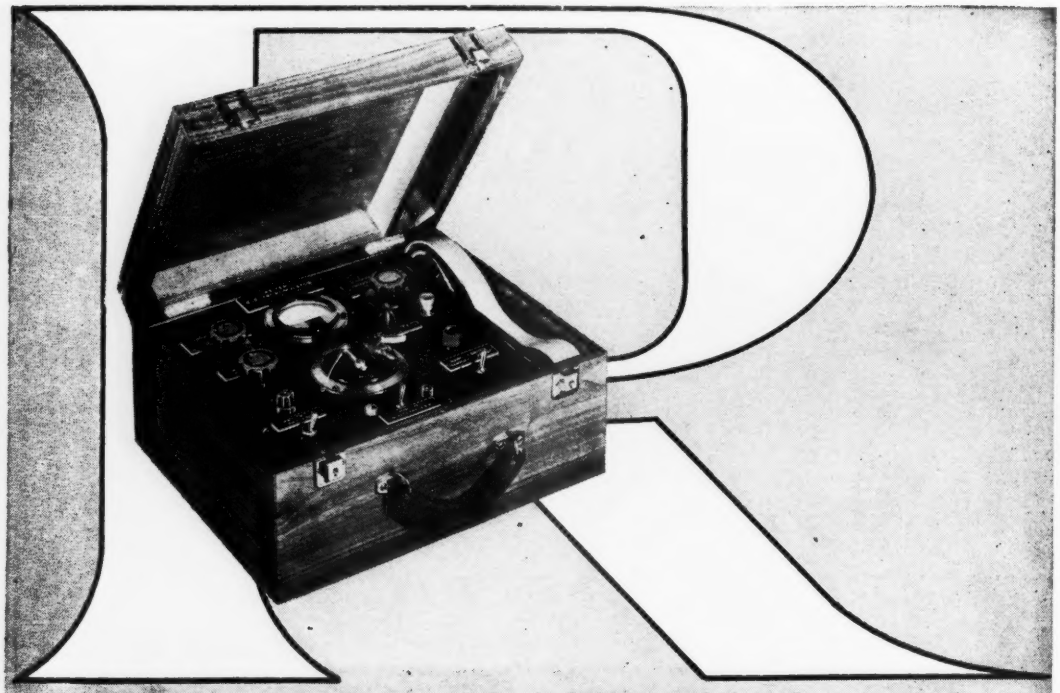

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Volume XVIII JANUARY 1957 Number 1

DISEASES *of the* Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

A Psychometric Concomitant of Bioccipital Spike Seizure Foci

ALICE CALVERT ROBERTS, SC.D.

Since Berger's first publication in 1929,[1] many reports have appeared concerning the relation of human brain potentials to psychology. These have been thoroughly reviewed by Knott,[2] Lindsley,[3] and Kennard.[4]

Because the early workers in the field had few channels on their machines, and these were usually used to study the occipital areas, it followed that the workers should be preoccupied with the most obvious rhythm in that area, the alpha rhythm. Especially the alpha frequency and alpha index were studied. When psychometric correlations were attempted with these functions of alpha, the Binet type of test was employed so that the resulting attempts at correlation were usually between I.Q. and alpha index or frequency.

Most studies were done on normals. Notable on deficients were studies by Kreezer on Mongoloids[5] and on adult non-differentiated familial type deficients.[6] This last study by Kreezer and one by Knott, Friedman and Bardsley[7] on an intellectually heterogeneous group of eight year olds, which could not be confirmed in a similar group of twelve year olds, are the only studies exhibiting even a slight positive correlation between alpha frequency and intelligence, although numerous such correlations have been attempted.

Other electroencephalographic investigations were concerned with intelligence tests other than the Binet.

Greenblatt et al.[8] used a battery of abstract tests consisting of Goldstein's modification of Kohs block designs, Weigl form-color sorting, color sorting with Holmgren yarns, and Shipley abstraction test. Since it was varied in its content, this battery may have covered the functions of different areas of the cortex. These authors did not try to analyze the type of performance or the cortical areas involved in the battery of tests, but rather considered the general performance of the subject on all the tests. They divided their results into five groups to give quantitative values to performance on these tests and then compared these divisions with similar quantitative assessment of the "quality" of the EEG. While there were many discrepancies, there was a pronounced correlation between abstraction ability and abnormal EEG's and other signs of impairment.

Shagras[9] attempted to correlate occipital alpha frequency and performance on the classification test given U.S. Aircrew candidates. He found no significant difference between alpha frequency and the scores on these tests of mental ability.

Hill,[10] in examining the EEG in episodic behavior disorder refers to Dr. Henry Rey's unpublished work, which employed the Mill Hill Vocabulary[11] and the Raven Progressive Matrices.[12] He said "it is those schizophrenics with paroxysmal EEG abnormalities and only those schizophrenics, who, as a group, show the significant tendency to verbal-nonverbal discrepancy on intelligence tests." He found their verbal scores lower than their non-verbal scores.

Material and Methods

If we assume with Penfield[13] that "the higher brain stem, together with that portion of the cortex which is being employed at the moment is the seat of consciousness," there is ample reason to correlate the pathology of this same area, as demonstrated by electroencephalography, with intellectual deficit

From the Laboratory of Electroencephalography, University of Illinois, College of Medicine, and the Illinois Eye and Ear Infirmary, Chicago, Ill.

as demonstrated by appropriate psychological tests; for the electroencephalograph is capable of exploring the available cortex as well as the activity of the thalamus and hypothalamus, i.e., the upper brain stem. To this end EEG records of focal epilepsy have been employed. In the present study all records were made and read in the Gibbs' Laboratories at the University of Illinois on eight channel Grass machines. Monopolar leads were taken bilaterally from the frontal, anterior temporal, temporal, parietal, and occipital areas. Reference electrodes were placed on both ears.

The subjects consisted of a) 27 cases having a unilateral or bilateral spike seizure foci in the anterior temporal region. These patients' chief complaint was seizures of the psychomotor type, and b) 16 cases with a unilateral or bilateral spike seizure foci in the occipital area. These patients also had clinical seizures, but not of the psychomotor type.

One of the psychological tests employed, the Raven Progressive Matrices,[12] has been carefully and fully standardized by Raven for normal subjects in the age range considered here (between five and 56 years of age). The Raven test has been studied and evaluated in the Thurstone Laboratories at the University of Chicago for certain factors related to intelligence by H. J. A. Rimoldi.[14] It is generally accepted to have no verbal component but to be saturated in space and visual perceptual factors, as well as in Spearman's "g."[15] The Raven test is scored as follows:

GRADE I—"Intellectually superior" if his score lies at or above the 95th percentile for people of his age-group.

GRADE II—"Definitely above average in intellectual capacity" if his score lies at or above the 75th percentile.

GRADE III—"Intellectually average" if his score lies between the 25th and 75th percentile.

GRADE IV—"Definitely below average in intellectual capacity" if his score lies at or below the 25th percentile.

GRADE V—"Intellectually defective" if his score lies at or below the 5th percentile.

These scores have been standardized both for children and for adults by Raven if the proper form of the test is administered.

As a reference for comparison with another mental ability, the Crichton Vocabulary Scale,[16] which has been similarly standardized for the lower age groups, was employed. This was used on adults as well as on children, since the Mill Hill Vocabulary Scale[11] for adults was not immediately available. Since it was not possible to score the adults similarly to the children on this test, the results were simply divided into three groups, high, medium and low. The adults who scored over 70 words were considered "high"; those from 60 to 70 "medium"; and those below 60, "low." The vocabulary of the children was adjusted for age by means of the Crichton Scale, then considered as above average, average and below average.

Number of Cases and Percent Falling Into Each Group of Raven

CHART I

	CASES	I	II	III	IV	V
Psychomotor	(27)	1	0	17	8	1
Unioccipital	(3)	0	0	2	0	1
Bioccipital	(13)	0	0	1	2	10

CHART II

Sorted for Vocabulary Performance

HIGH VOCABULARY

	CASES	I	II	III	IV	V
Psychomotor	(12)	1	0	9	2	0
Unioccipital	(0)	0	0	0	0	0
Bioccipital	*(4)	0	0	1	1	2

*These four cases rated unusually high in vocabulary—Group I+ or I (definitely superior).

MEDIUM VOCABULARY

	CASES	I	II	III	IV	V
Psychomotor	(8)	0	0	6	2	0
Unioccipital	(3)	0	0	2	0	1
Bioccipital	(4)	0	0	0	0	4

LOW VOCABULARY

	CASES	I	II	III	IV	V
Psychomotor	(7)	0	0	2	4	1
Unioccipital	(0)	0	0	0	0	0
Bioccipital	(5)	0	0	0	1	4

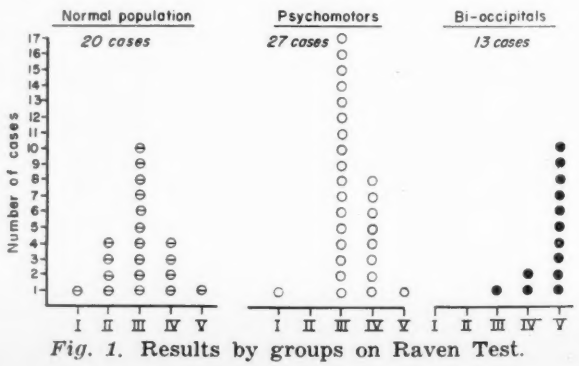

Fig. 1. Results by groups on Raven Test.

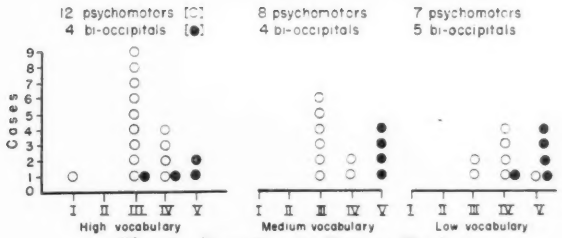

Fig. 2. Results on Raven Test.

Discussion

Only one case in 27 of the epileptic patients with anterior temporal foci (eight of which were bilateral), fell into Group V on the Raven, but ten out of 13 of the patients with bioccipital foci fell into Group V. The one case that fell into the definitely superior classification (Group I) and the one case that fell into the deficit (Group V) were both bilateral psychomotors. On the percentile curve, only one person in 20 in the average population might be expected to be found in Group V. Therefore, these ten bioccipital cases falling into Group V might be expected to be found among 200 in the average population, instead of among 13 as we found them.

It appears that the Raven is a deficit test of the bilaterally damaged occipital area. Tests of intellectual deficit have long been sought to help us to a better understanding of the seat of intellectual processes. The fact that it may be necessary that the damage be bilateral to show this degree of deficit cannot be determined from the few (3) unilateral cases we had, but our material suggests that this might be the situation. Of course, the three cases are too few from which to draw any conclusions, but are documented to show the possible danger in expecting them to perform in a like manner to the bioccipitals. The fact that it may be necessary that the damage be bilateral may be due to the good innervation which the visual cortex receives from both the ipsi and contralateral fields as is the case with the auditory cortex and its coverage. But in the auditory cortex, perhaps the wide separation of equivalent areas makes exactly equivalent destruction on both sides very unlikely.

In all of our cases the seizure activity was of fairly high voltage and fairly constant, not small, sharp spikes. In this paper, spike seizure activity has been construed to be an indicator of disturbed physiological function. In the occipital area we have further indication of this disturbance since we have available a psychological as well as an electrophysiological test of this area.

When the cases were sorted for their vocabulary performance, so that vocabulary then became a frame of reference, even those bioccipitals with extremely high vocabulary shifted markedly to the low side of the Raven. The superior performance (Group I) of some of these occipital cases on vocabulary tests, even though these cases fall into the defective Group V on the Raven, substantiates the theory of the dissociation of certain mental abilities[17] and the development of electroencephalographic technique helps to locate the area of deficit.

In view of Rey's findings on "the schizophrenics with paroxysmal EEG abnormalities," it should prove of interest to study our 27 psychomotors with the Mill Hill Vocabulary Scale to ascertain if their vocabulary score falls below their Raven score, contrary to the findings in the bioccipitals. As a corollary, all brain-damaged individuals do not perform in the same manner on different psychological material.

The outward showing of this occipital deficit in regard to performance takes many forms. Some of these patients are so lacking in visio-spacial perception that they have to be led even from one room to another, although they are not blind. Some are not able to identify the pictures in the Binet picture vocabulary and cannot match colors. If he is able to match the simplest of The Raven patterns, the patient with bioccipital electroencephalographic disorder characteristically fails in the problem solving which the test demands and thus his score is still very low. He may rotate the visual axis 90°, so that he matches vertical with horizontal lines. He may be poor in automatic tasks such as buttoning and hooking clothes. Almost constant nystagmus was present in two of our patients and strabismus[18] is a frequent accompaniment. The array of symptoms (visio-spacial in nature) appears to be related to Bailey's Planotopokinesia, a category in which he places patients, some of whom are unable to perform automatic acts, such as buttoning, reading

maps, or finding their way from room to room. Such syndromes are revealed by tests constructed to determine the visual agnosias, alexia, agraphia, and acalculia and nonverbal apraxias. These divisions of aphasia apparently include the varied syndromes of bilateral occipital damage as determined by the EEG. This syndrome may be found in relatively pure form in bioccipital damage, and not necessarily admixed with the verbal, amnestic, or perhaps emotionally-structured aphasia of the temporal lobe. This difference of symptomology in the two groups points to a temporal and occipital type of aphasia.

During the examination of the psychomotors, there was frequent evidence of what might be construed as periods of amnesia, i.e., the patient might fail some easy tasks through a portion of a test, all of which was similar, and then "come back" to complete successfully more difficult material in the same test group. This quality of "fading," which is definitely not "scatter," and return to normal was very evident in the psychomotors, probably because their unusually good functioning made these periods of "fading" show up by contrast in a manner not possible with the always poorly functioning bioccipitals. On several occasions this fading became a full blown psychomotor seizure as an end point, rather than the usual rapid return to normal function. Possibly this condition is closely associated with Head's original concept of aphasia—a two part mechanism with a language component and an amnesic component. (The syndrome would, of course, be dependent upon the area of seizure discharge.)

Such "fading" of the brain-damaged child frequently plagues the educator who is thoroughly confused and frustrated by a child's inability to recall learned material which he had been capable of using the moment before. Teachers, as well as parents, often construe this behavior to be stubbornness on the part of the child.

Some occipitally damaged children who have never recognized an "O" before, for example, have been taught to recognize letters by kinaesthesia. Even if sensory material other than visual and auditory is not necessary for normal children to recognize letters, this other sensory mechanism may play a very important part in the education of a child damaged in the area of visio-spatial perception.

Summary and Conclusions

Twenty-seven patients with an anterior temporal focus of seizure activity were tested with the Raven Progressive Matrices. Seventeen (71 per cent) obtained a score which placed them in the average group (Group III), one was superior (Group I), eight were inferior (Group IV), and one was deficient (Group V). The unilaterality or bilaterality of the anterior temporal focus did not affect the score and it was concluded that the Raven Progressive Matrices does not test functions that are disturbed in patients with anterior temporal lobe disorder, as evidenced by the electroencephalogram.

Thirteen patients with bioccipital foci of seizure activity were compared with the anterior temporal lobe group, as regards scores on the Raven test. Only one obtained a score which was average, none were above average, and ten (77 per cent) were deficient (Group V). Three patients with a unilateral focus were tested; two were average and one deficient. From these results it was concluded that the Raven test deals with functions that are disturbed in patients with bioccipital disorder, as evidenced by the electroencephalogram. The number of cases with a unilateral occipital focus was too small to show definitely whether the functions tested by the Raven matrices are not sufficiently impaired when the occipital lobe disorder is unilateral but the trend of the evidence favors this assumption.

This study leads to the following conclusions:

(1) The performance on the Raven by patients with anterior temporal lobe disorder (as evidenced by spike foci in the electroencephalogram) was at least as good as that of a normal population.

(2) Performance of the Raven Progressive matrices test by patients with bioccipital disorder (as evidenced by spike foci in the electroencephalogram) was far below that of a normal population.

Acknowledgment: I wish to express my sincere appreciation to Dr. F. Stamps for selecting the cases used in this study and for his constant encouragement throughout its course; and to Dr. and Mrs. F. A. Gibbs for their help with this paper, and especially for supplying the records which made this paper poss.ble.

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Chicago, Illinois.

Combination Reserpine-Methylphenidylacetate in Epileptics With Psychosis

G. DONALD NISWANDER, M.D., and EARL K. HOLT, M.D.

For the past three years reserpine has been widely used in the treatment of mental illness. Barsa and Kline have reported their experience with reserpine in the treatment of psychotic patients with convulsive disorders.[1] These investigators found reserpine "not as effective in psychotic patients with convulsive disorders as in psychotics without convulsive seizures . . . in the former, the maximum effect to be expected is usually one of sedation." Previously, they had found that patients with convulsive disorders did not respond well to reserpine medication.[2] Ferguson has reported the effective use of a new analeptic drug, methylphenidylacetate, in off-setting reserpine induced depression.[3] We have also found that the combination of reserpine and methylphenidylacetate is a useful chemotherapeutic medication for improving the behavior patterns of 225 chronic hospitalized mental patients.[4]

From the report of these investigators, it was felt that it would be worth while to evaluate the use of combination reserpine-methylphenidylacetate medication in psychotic patients with convulsive disorders. This paper reports the results of the first sixteen weeks of a study in which this drug combination was administered to a group of 26 hospitalized epileptic patients.

Method of Study

The 26 patients were all women with epilepsy who were cared for on one of the

From the Department of Psychiatric Research, New Hampshire State Hospital, Concord, New Hampshire.

chronic wards in the hospital. The age of the patients ranged from 16 to 64 years, with a median age of 40.5 years. The duration of hospitalization extended from 4 months to 30 years, with a median duration of 9.7 years.

Table I summarizes the diagnostic categories of the 26 patients.

TABLE I—DIAGNOSTIC CATEGORIES

Diagnosis	*No. of Patients*
Chronic Brain Syndrome Associated with Convulsive Disorder (Idiopathic)	16
Schizophrenic Reaction, with Associated Convulsive Disorder	6
Mental Deficiency with Associated Convulsive Disorder	3
Chronic Brain Syndrome due to Infection, Post-Encephalitis, with Convulsive Disorder	1

Observations: Those relating to ward behavior were recorded by psychiatric nurses in charge of the ward on which the patients resided. Symptoms of hyperactivity, over-talkativeness, assaultiveness, destructiveness, agitation and tension, were rated daily before and during the study. A simple rating scale for observations was as follows:

3 Severe (maximum rating)
2 Moderate
1 Mild
0 Absent (minimum rating)

This method of observing and rating ward behavior had been previously used by the authors in evaluating the effects of reserpine in mental illness.[5] Convulsive seizures were recorded during the study, and compared with the number of seizures each patient had experienced during the preceding six months.

Medications: At the outset, each patient was placed on reserpine, 4 milligrams daily, in a single dosage. In addition, each patient was given methylphenidylacetate, 30 milligrams, twice daily. One, two and four milligram reserpine tablets, and ten and twenty milligram methylphenidylacetate tablets were used as medications.

Withdrawal of Anti-convulsants: All 26 patients were receiving some type of anti-convulsant medication when the project started. The following table depicts those medications.

TABLE II—ANTI-CONVULSANTS

Drug	*No. of Patients*
Diphenylhydantoin Sodium	23
Phenobarbital Sodium	18
Methyl-phenyl-ethyl hydantoin	1
Primidone	1
Trimethadione	1
Combination: Diphenylhydantoin Sodium Phenobarbital Sodium	14
Combination: Diphenylhydantoin Sodium Phenobarbital Sodium Trimethadione	1

The withdrawal of these anti-convulsants was initiated during the first week of the study, and the following schedule for discontinuing these drugs was carried out.

Diphenylhydantoin sodium was withdrawn first; this drug was reduced in dosages of 90 milligrams every five days. This procedure was accomplished by first withdrawing 90 milligrams of the drug from the group who were receiving the drug more than once daily, until all patients were receiving 90 milligrams daily. This last daily dosage was withdrawn from the entire group on the same day.

This same procedure was then used in withdrawing phenobarbital sodium, except when the group of patients was receiving 90 milligrams a day, the dosage was reduced to 45 milligrams a day for one week, and then was discontinued completely. This method was an attempt to alleviate the possibility of seizures associated with withdrawal symptoms in a drug which has a tendency to cause physiologic habituation.

The patient receiving primidone had the medication reduced 250 milligrams every 5 days until the medication was discontinued.

The patient receiving methyl-phenyl-ethyl-hydantoin had the medication reduced 100 milligrams every 5 days until the medication was discontinued.

The patient receiving trimethadione had the medication reduced 300 milligrams every 5 days until the medication was discontinued.

If there had been no change in the patients' ward behavior after having received the initial reserpine dosage, this medication was increased at weekly intervals. During the first one and one-half weeks of the study, 14 patients had the reserpine dosage increased to 5 or 8 milligrams daily. It was

not necessary to change the reserpine medication in the other 12 patients. The methylphenidylacetate dosage remained constant throughout the study.

Results

The following summarizes the results observed in the symptom categories during the study.

Ward Behavior: The personality characteristics of all 26 patients changed remarkably during the study. The following summarizes the improvement of the symptomatology observed by the rating scale:

Hyperactivity: Twelve patients were rated as being hyperactive before receiving the drug. In 2 patients this was severe; in 4 moderate; in 2 mild, and in 4 others this symptom varied from absent to severe. While receiving the drug hyperactivity subsided in all but 2 patients. For the most part it was absent in those two patients, but occasionally rated moderate to severe.

Overtalkativeness: Twelve patients were rated as being over-talkative before receiving the drug. In 5 patients this was severe; in 4 moderate, and in 3 others this symptom varied from absent to severe. While receiving the drugs all patients improved. In 4 patients this symptom was absent for the most part, but at other times present, rating mild to severe.

Assaultiveness: Three patients were occasionally mildly assaultive before receiving the drugs. While on the drugs this behavior was not present.

Destructiveness: Three patients were rated as being destructive before receiving the drugs. In one patient this was severe; in another mild or moderate and in the third occasionally mildly present. On the drugs destructiveness was absent.

Tension and Agitation: Twelve patients were rated as being tense and agitated before receiving the drugs. In one these symptoms were severe; in 4 moderate; in 3 mild, and in 4 absent to severe. Tension and agitation subsided completely in all but one patient while receiving the drugs. In this patient it was almost always absent, but occasionally mildly recognized.

The patient's individual personality changes were even more dramatic. Whereas many of the patients were irritable, cantankerous, impulsive, demanding and hostile before receiving reserpine, they all became more pleasant and cooperative on the drug. Consequently, interpersonal relationships between patient-patient and patient-ward personnel were greatly improved. The bettered personalities made the patients more accessible toward occupational therapy activities and recreation.

Convulsive Seizures: At the end of the first 16 weeks of the study these 26 epileptic patients had become classified into three distinct groups.

Group I: This group included 4 patients who began experiencing a marked increase in the incidence of convulsive seizures after the first week of the study. As the study progressed the incidence of seizures increased. However, the program as outlined here was carried out until the end of the seventh week. At this time these four patients were markedly confused, extremely lethargic and bed-ridden. The clinical picture appeared serious. Reserpine and methylphenidylacetate were discontinued and the patients were returned to anti-convulsant medications. The response was dramatic and for the next four weeks none of these 4 patients had a convulsive seizure. At that time 3 of the patients began having occasional periodic convulsive seizures, and this has been better controlled by readjusting the anti-convulsant medications. The other patient in this group did not have the convulsive seizures which were characteristic of her clinical picture before the study started.

Group II: This group included 11 patients. As the anti-convulsant medications were withdrawn a slight increase was noted in the incidence of convulsive seizures in a few of these patients. At the eighth week 6 of these patients were having more seizures than previously. However, the clinical picture was in no way as alarming as those patients in Group I. The reserpine dosage for the patients in Group II was between 4 and 8 milligrams of the drug daily. At the eighth week this reserpine dosage was halved for each patient. For the next two weeks the incidence of seizures reverted to

the previous normal picture. During the tenth week of the study 3 of the patients began having more frequent convulsive seizures, but no anti-convulsant medication was added to their treatment program. Therefore, these 11 patients in Group II have been carried on reserpine and methylphenidylacetate medications only, and except in a few instances, there was no increase in the number of convulsive seizures.

Group III: This Group included 11 patients. All these 11 patients showed an increase in the number of convulsive seizures during the first six weeks of the study. At the eighth week the reserpine medication was halved. Previously they had been receiving from 4 to 8 milligrams of reserpine daily. For the following two weeks the incidence of seizures dropped markedly, but the frequency of seizures was much greater than before the study started, and greater as compared with the patients in Group II. Therefore, in addition to receiving reserpine and methylphenidylacetate these patients were gradually replaced on the anti-convulsant medications, which they were receiving befor the study started. When the anticonvulsants were added the convulsive seizures reverted to the frequency rate at the early part of the investigation.

Comment

The patients were divided into three groups classified as to the clinical response while receiving combined reserpine-methylphenidylacetate medications. After anti-convulsants were withdrawn the patients in Group I did not tolerate the reserpine-methylphenidylacetate medication and their clinical picture reverted to its previous state and they were put back on anti-convulstants. The patients in Group II were carried on a medical program using only reserpine and methylphenidylacetate as medication, without the addition of anti-convulsants, and those in Group III were on a combination of reserpine and methylphenidylacetate plus anti-convulsants. In Group II there was a marked decrease in seizures when the reserpine dosage was reduced fifty per cent. This likewise occurred with those patients in Group III before anti-convulsants were added. This fact would seem to verify the observations of Barsa and Kline, that smaller doses of reserpine are better tolerated by psychotic patients with convulsive disorders. These authors also observed in their study that the incidence of convulsive seizures decreased markedly when the dosage of reserpine medication was reduced from large doses, 5 to 10 milligrams a day, to 2 to 3 milligrams of reserpine daily.[6]

All three groups experienced an increase in the frequency of seizures during the anticonvulsant withdrawal period. This was more evident in Group I and III. The increase in seizures in some patients undoubtedly was due to the withdrawal of these medications. However, in evaluating the entire 26 patients, there was no significance between the seizure frequency and the previous medications, which were gradually discontinued. After anti-convulsants were prescribed again for the patients in Group III the incidence of seizures lessened but was still much greater as compared with Group II.

Through this sixteen week period, the side effects of lethargy, transient diarrhea, etc., which is frequently encountered when reserpine is used alone, in small or large doses, did not occur in these patients, except those in Group I. Neither did Parkinson-like symptoms appear. This has been attributed to the methylphenidylacetate which apparently tends to offset the undesired side effects of reserpine in most patients.

It has been impossible to determine a significance between diagnosis and response to the reserpine-methylphenidylacetate combination in this group of epileptic patients. The patients who were classified into Group I were considered moderately deteriorated epileptic individuals, although similar patients are found in Groups II and III.

The authors are continuing this study to compare the data collected during this initial sixteen week period with other observations as they become available in the future. This group of 26 will likely be permanent hospital residents and in addition, other patients will be included as they are admitted to the epileptic ward. In the continuation of the program a comparison will be made between the patients in Groups II and III. Anti-convulsant medication will be manipu-

lated between the groups, and an evaluation will be made when placebos are substituted for reserpine and methylphenidylacetate. As new patients come into the study the opportunity will be afforded to compare the experience gained during the first sixteen weeks with other treatment programs using reserpine and methylphenidylacetate for epilepsy, with or without anti-convulsant medications.

The authors feel that the combination of reserpine and methylphenidylacetate is valuable in the treatment of the chronic hospitalized epileptic patient. The personality improvements alone bring about a quieter, more pleasant and cooperative group of patients. Some epileptic patients can be carried on these drugs in combination without anti-convulsants as part of their treatment program. Others need anticonvulsants for seizure control when receiving reserpine and methylphenidylacetate and a few patients cannot tolerate the latter drugs.

It is suspected that the use of reserpine in combination with methylphenidylacetate for the treatment of epilepsy has to be extremely individualized; it would seem that it is necessary to evaluate how each patient is going to respond to such a treatment program, with or without anti-convulsants, before abandoning the drug combination even when results seem intolerable.

Summary

The results of a sixteen weeks study with a group of 26 hospitalized epileptic patients are reported. Reserpine and methylphenidylacetate in combination, have been used with or without anti-convulsant medication.

A remarkable improvement occurs in patients who are either hyperactive, over-talkative, assaultive, destructive, or tense and agitated. The individual personality changes make the patients more accessible for activities, recreation, and other interpersonal socialization.

Four patients did not tolerate the reserpine-methylphenidylacetate routine. Eleven patients needed anti-convulsants with the new drug combination. Eleven other patients got along as well on the combination, without anti-convulsants, as they had previous to receiving reserpine and methylphenidylacetate.

Authors' Note: Reserpine (Serpasil) and Methylphenidylacetate (Ritalin) were supplied by Ciba Pharmaceutical Products, Inc., Summit, N. J., for this study.

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Chlorpromazine: A Controlled Study with Highly Disturbed Patients

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One of the more important problems in large mental hospitals is treatment of the chronically disturbed patient. Shock therapies, recreational-occupational therapies, and various forms of psychotherapy have all been used with varying degrees of success. Many patients, however, have remained relatively unresponsive to any of these forms of treatment. It has been impossible to continuously control their behavior or to effect lasting changes toward higher social adjustment. Past experience indicates that numerous therapeutic techniques have been overenthusiastically accepted on first release but have not withstood the test of controlled studies.[1] Because many reports on chlorpromazine have been based on non-controlled studies, we became interested in conducting a controlled study.

Present Study

Hypotheses.—The experiment was designed to test two hypotheses: that chlorpromazine is a tranquilizing drug and that chlorpromazine will result in improvement in social behavior.

Procedure.—Sixty-six of the most highly disturbed female patients in the hospital were placed on one ward. The patients were rated for two weeks by the use of the L-M Fergus Falls Behavior Rating Scale prior to the initiation of the project.[2,3] They were then matched according to behavior ratings and placed in two groups by a psychologist who was not otherwise connected with the program. He communicated only to the hospital pharmacist, who then chose which group was to receive chlorpromazine and which was to receive the placebo. The pharmacist prepared a bottle of chlorpromazine or placebo for each patient. The nature of the content of the individual bottles was kept secret until the conclusion of the experiment.

From Fergus Falls State Hospital, Fergus Falls, Minnesota.

The patients were observed for four weeks previous to the introduction of the medication. Base lines were established for behavior, blood pressure and white blood count during this four week period. Weekly behavior ratings, two blood pressure readings and two white blood counts were used to establish this base line.

The experimentors met at regular intervals to determine drug dosage, take blood pressure and make observations of the patient's behavior. White blood counts were taken by the laboratory technician once weekly. Behavior ratings of the patients were done weekly by two psychiatric aides who were otherwise not connected with the experiment. The patients were on medication for a period of twelve weeks. The dosage could range up to 1200 mgm. per day in increments of 100 mgm. The top limit of dosage was set high enough to exceed maximum dosages previously reported but not so high that very large amounts of medication would have to be given placebo patients.

The experimentors met twice a week for the first four weeks of medication and once a week thereafter. When emergencies arose, experimentors met more often to deal with them. If the experimentors felt that a patient was suffering from overdosage, the medication was reduced or discontinued for a short period of time.

During a four week post-medication period, the patients were seen twice for blood pressure evaluation, behavior ratings, clinical evaluations and white blood counts.

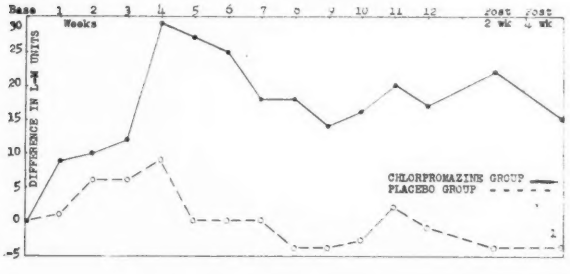
No new forms of therapy were introduced on the ward during the study. The authors realize that the increased attention the patients received and the heightened interest of the ward personnel was a change in environment for the patients. The effect of these factors, however, was common to both drug and control groups. Pre-existing forms of therapy such as ECT, previous medications, and seclusion were continued as necessary.

Occupational and recreational activities were available in the same amount as before.

Statistical tools used were standard error of a difference between related means, standard error of the difference between unrelated means and chi-squar. All differences to be mentioned as significant are significant at the one per cent level except for the behavior difference between the two groups which was significant at the five per cent level of confidence.

Description of Groups. — Approximately 68% of both groups had a diagnosis of schizophrenia; 14% manic depressive psychosis; 11% psychosis with mental deficiency; and 7% miscellaneous diagnoses. The chlorpromazine group was hospitalized an average of 16 years and the placebo group an average of 18 years. The chlorpromazine group averaged 44 years of age and the placebo group averaged 47 years of age. These differences are not significant; the groups are essentially equivalent for the above characteristics.

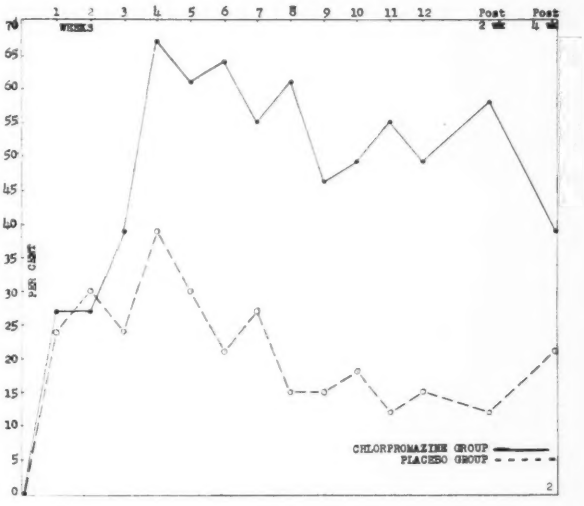
GRAPH 1—BEHAVIOR AVERAGE


Base
1 2 3 4 5 6 7 8 9 10 11 12
Post 2 wk
Post 4 wk
Weeks
DIFFERENCE IN L-M UNITS
30 25 20 15 10 5 0 -5
CHLORPROMAZINE GROUP
PLACEBO GROUP

Quantitative Results. — As can be seen from Graph 1, the chlorpromazine group showed an immediate improvement over the placebo group. The behavior of the placebo group did not change significantly throughout the experiment. The improvement in the chlorpromazine group reached statistical significance after four weeks of medication and the group held this significant improvement throughout the course of medication. It is interesting to note that this improvemen was maintained for the four weeks the patients were observed following discontinuance of the medication. Further research should be done to see how long a patient will maintain improvement following chlorpromazine therapy.

The average amount of improvement was about 0.20 L-M units. This is less than the improvement found with female patients on a milieu type of program for regressed schizophrenics.[4]

GRAPH 2—PER CENT SHOWING IMPROVEMENT (.20 OR MORE L-M UNITS)


1 2 3 4 5 6 7 8 9 10 11 12
Post 2 wk
Post 4 wk
Weeks
PER CENT
70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
CHLORPROMAZINE GROUP
PLACEBO GROUP

As can be seen in Graph 2, 49% of the chlorpromazine group had a positive difference in behavior rating average of .20 or more L-M units at the end of medication. The fact that almost half of the patients showed this much improvement is of obvious practical importance. The chlorpromazine group improved in the following areas of the L-M scale: working behavior, eating behavior, behavior toward other patients, behavior toward ward personnel, behavior toward professional personnel, and toilet behavior. The chlorpromazine group did not get worse in any of the areas. The placebo group improved in its attitude toward professional personnel, but worsened with regard to verbal behavior. These were the only two changes in the placebo group.

Two interesting observations can be made from Graphs 1 and 2. During the fourth week of the medication, the patients reached the highest level of improvement and then leveled off at a lower level. Similar results were obtained with another research project.[1] This is probably due to the increased activity and attention on the ward and the symbiotic relationship between personnel and patients in terms of optimism and en-

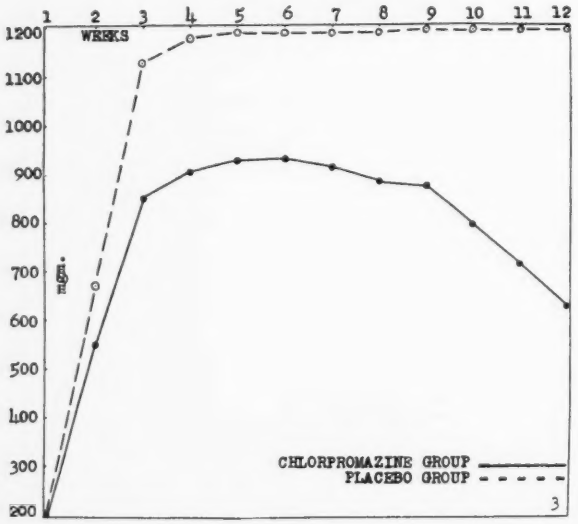
thusiasm and desire for improvement with a new form of treatment. The other observation is that behavior changes seem to be cyclic on a disturbed ward.[1]

TABLE 1
Control Techniques

(Number of times control techniques were used with some patients in both groups)	Pre-medication (12 wks.)	During medication (12 wks.)	Post-medication (4 wks.)
ECT			
Chlorpromazine	201	18	14
Placebo	147	87	34
SECLUSION			
Chlorpromazine	48	12	8
Placebo	36	21	17
SEDATION			
Chlorpromazine	12	0	0
Placebo	9	12	2

A glance at Table 1 immediately indicates that chlorpromazine is an excellent form of control of the overactive behavior of disturbed patients. The placebo group showed only a slight diminution of overactive behavior. There was a mean weight gain of four pounds in both groups.

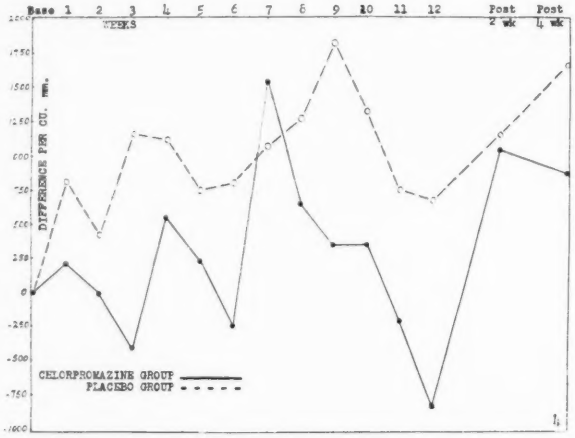
GRAPH 3—DOSAGE



It will be noted from Graph 3 that the placebo group received a significantly greater dosage throughout the experiment than did the chlorpromazine group. The highest average dosage of chlorpromazine was given during the sixth week. The subsequent decrease in chlorpromazine dosage is due to two factors: some patients had to be temporarily discontinued when they became too stuporous and the dosage in many patients was adjusted downward to find the optimum point at which the patient appeared maximally relaxed without stupor. The final chlorpromazine dosage varied between 300 and 1200 mgm. per day per patient with an average of 633 mgm. per day.

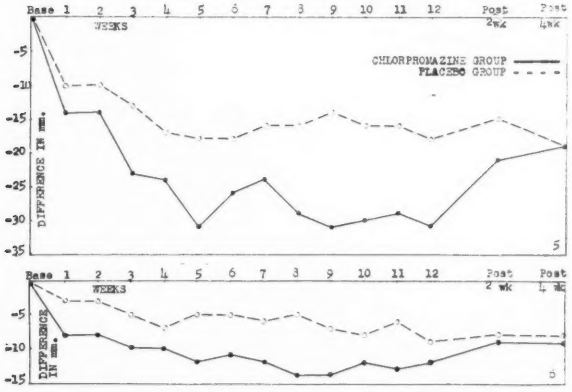
The dosage of the placebo group rapidly approached the allowable maximum by the third week and reached the absolute allowable maximum in the ninth week. It is an interesting commentary on clinical observation that the experimentors were hesitant to give the allowable maximum of placebo to one patient as they thought that she was exhibiting undesirable chlorpromazine induced side effects.

GRAPH 4—WHITE BLOOD COUNT



The record of average total white blood count as illustrated in Graph 4, indicates that there is random variation in the chlorpromazine group and a consistent elevation above the base line in the placebo group. The range of average white blood count varied from 7,197 to 9,588, while individuals varied from 3,900 to 28,200 in the chlorpromazine group. In the placebo group the average varied from 7658 to 9,488, whereas individuals varied from 3,850 to 17,300. At no time was there a sustained suppression of white blood cells in any patient. There was in an apparent relative elevation of white blood cell count in the placebo group. At no time did the experimentors find it necessary to vary medication dosages because of the white blood count results.

GRAPH 5—SYSTOLIC BLOOD PRESSURE



GRAPH 6—DIASTOLIC BLOOD PRESSURE

Graphs 5 and 6 show a general decrease in blood pressure in both groups. There is a significantly greater decrease in blood pressures in the chlorpromazine group.

Clinical Results.—Observation of patients indicated previously reported side effects of drooling, general malaise, incoordination, rash, edema of the face, staggering gait, slurred speech and mask-like facies when the dosage was increased beyond the individual's apparent tolerance. The side effects disappeared within one to four days in each case when the dosage was decreased or discontinued. No jaundice was noticed in any of the patients.

Some unusual side effects were noted. There was a definite "photosensitivity." Patients exposed even briefly to direct sunlight rapidly acquired a sunburn. This was apparent only in the chlorpromazine group and appeared regardless of size of dosage. It was noted that some patients who were overdosed and showed most of the above signs also evidenced extreme difficulty in deglutition.

One patient, who had been mute for several years, exhibited extreme side effects of malaise, drooling, hypotension, inability to swallow, etc. in fact there were such severe side reactions that there was fear expressed for her survival. However during her extreme physical manifestations, the patient conversed at a relatively high social level. When the drug was discontinued and the patient's physical reactions finally subsided, the psychiatric symptoms again enveloped the patient. An optimum level of medication was not reached for this patient.

Although the average chlorpromazine dose was about 633 mgm. per day, it is believed that some patients might have shown improvement if their dosage could have exceeded the pre-established 1200 mgm. per day maximum.

It was noted in some patients who achieved a better type of behavior at a given dosage level that side effects gradually appeared. As the dosage was decreased, the side effects disappeared but the level of behavior was maintained. This would seem to indicate that there is a cumulative effect and/or decreased tolerance to chlorpromazine in some patients.

A number of patients who did not develop any spectacular side effects, nevertheless became stuporous and would sit in one spot throughout the day if allowed to do so. It is questionable whether the transformation of a hyperactive patient to a stuporous patient should be looked upon as improvement. It is obvious that this sort of change makes for less of a management problem to ward personnel, but it is doubtful that this is improvement toward recovery or social adaptability.

As a sequel to the experiment, two patients from the placebo group were subsequently transferred to better wards. Five patients from the chlorpromazine group were transferred to better wards and of the five, two are now awaiting discharge. The majority of the patients that improved, did not improve enough so that they could be transferred to a better ward but are carrying out socially productive types of activity on the ward and/or are less of a management problem.

Clinical estimates of patient's improvement were made at the end of the program by the experimentors but proved unrealizable. This fact will be elaborated on further in a future paper.

Summary

Sixty-six of the most highly disturbed female patients in the Fergus Falls State Hospital were placed on one ward. They were divided into two groups by means of matching for behavioral level. One group received chlorpromazine and the other group received a similar placebo. Dosages varied from 100 to 1200 mgm. per day. The pa-

tients were studied for the four weeks prior to medication, during the 12 week medication period, and for a four week post-medication period.

Records were kept of behavior ratings, white blood counts, and blood pressure readings during the experiment. Records were also kept of the ECT, sedation, and seclusion for the 12 weeks prior to medication, the 12 weeks of medication and the four week post-medication period. The patients were observed clinically at least once weekly by the experimentors.

Conclusions

Chlorpromazine is of definite therapeutic value in hospital treatment of highly disturbed female patinets.

Chlorpromazine affects behavior in such a way that other sedation, ECT, and seclusion can be drastically reduced.

Chlorpromazine lowers both systolic and diastolic blood pressure.

There appears to be a cumulative effect of chlorpromazine in some patients.

Side effects new to the experimentors were photosensitivity and inability to swallow.

Authors' Note: We are indebted to Smith, Kline and French for furnishing the chlorpromazine (Thorazine) and the placebo and to the following people for various types of assistance: Adeline Foss, Robert Matthews, R.Ph., Evelyn Snyder, R.N., Curtis Page, Ph.D., and the nursing personnel without whose wholehearted help and cooperation the project could not have been carried out.

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Identifications and Their Motivations

T. A. WATTERS, M.D.

Identifications are frequently encountered. They may serve the purpose of hostility, and when turned inward, can produce grief, suffering, and even suicide. Identification may be with a living person or after he has died, in order to keep his memory. Identification may occur with a dead person who has been hated and upon whom there have been directed hostile wishes often with consequent fears of retaliation. Guilt feelings may be assuaged through identification with a suffering person. A proxy, or a third party may be used to serve as an identification with the real object. A loved object may be used to identify with—this often being a strong determinant in passive-dependent persons. As one loves himself in accordance with a growing likeness to the admired object, self-esteem is enhanced. Identifications may become motivated to maintain strength in order to ward off fear and in a participating identification which makes possible not only the induction of self-esteem, but also the sharing of omnipotence. Identifications may take place with inanimate entities which represent animate beings. Such identification may occur with animals, toys, concepts, or even groups. Identifications may serve to allay fear, to muster aggression when there are feelings of being overwhelmed, intimidated, exploited. They can occur when there is a highly competitive relationship, as a means of competing successfully, especially in fantasy. One may strive for identification and against it. When one feels restricted by or separated from significant persons by death, desertion, or sickness, identifications commonly occur. These operate as measures against starvation, loneliness, insecurity, and reduced self-respect. They are found in such neurotic reactions as hysteria, and sometimes in obsessive re-

From the Department of Neuropsychiatry, School of Medicine, Louisia State University, New Orleans, La. Read before the Southern Psychiatric Association on October 4, 1955, in Atlanta, Ga.

actions, in the depressions and in the less disorganized schizophrenias where sometimes the "as if" personalities are found. In the more disorganized, there may be strange and fragmentary identifications—decompositions of former total identifications, or regressive remnants of previous identifications in the making; or the results of reparative efforts to form new ones.

Case 1. A lawyer aged forty, developed concern over his negro clients. He felt embarrassing urges to express tender affection toward negro women who came to him with marital difficulties. He did not feel any special interest in negro men's problem's, although he was not averse to being of assistance. To white clients he gave undivided service but not with the same spirit. Following the installation of fire protection apparatus in the school where his child attended, he found himself especially interested, and showed considerable activity to the cause as a public-spirited citizen. His interest in the Little Theater was strong but he always chose a subordinate role which he thought of as "an inferior role." Before judges he was fearful, had little love for them, and avoided court work as much as possible. He came to me after a round of shock treatment for clinical depression and requested hospitalization. His father, a country doctor, never got along with the patient's mother. There was bickering, jealous rages by the father, and evidence that his mother had an affair with a boarder when the patient was five years old. Thereafter the patient never had any positive feelings for his mother, but rather scorned and pitied her. For his father he had grateful respect, because he seemed worried when the patient was sick—but there was no closeness between them. However, a negro woman (a faithful servant over many years) was the one to whom he went with his problems, where he found succor and felt deep affection. He recalled that her husband, who had lived on the premises with her, once asked her to leave and go away, but she refused. In jest, the husband said that if she didn't comply he would burn the house down. The patient felt a terrific rage, which did not dispel itself for some time. Thereafter, he continued to feel resentful toward her husband, entertained thoughts about telling his father, but did not, because he might be reproached for loving the nurse and not his mother. Later on he worked around the yard and he developed an intense interest in fishing like the nurse's husband. In his teens he had sexual experiences with several negro girls, and wondered what people would think if he should marry one. He was more benevolent with negro charities than with white, and finally married a woman who looked like his nurse in features and stature. A study of his inferiority feelings revealed an identification with the nurse's husband, with tender sexual affection for the nurse.

Case 2. A 44 year old woman was referred to me because of strong sexual feelings toward an internist which were disturbing to her. She was of good social position, culture, and education. She was beginning the menopause, and was chagrined and puzzled about what was happening. However, these strong feelings soon abated, and therapy centered around her frigidity. She would lapse into periods of "miserableness," as she called them, would become very pale and anemic looking and would suffer greatly from insomnia and resort to sedation. The internist she had originally seen diagnosed her anemia as a Mediterranean type, or Cooley's anemia. In all, there had been about six blood studies made, several by outstanding authorities but there were sharp differences of opinion, some saying emphatically, "No." Much of her conflictual material revolved about her ambivalent feelings toward her father, to whom there was a strong attachment, with masochistic thoughts of being teased and slapped. She accounted for her hostility as a result of being rejected by her father in favor of her younger sister. Toward this sister there had always been outright hate and no social relationship, except for short periods, had ever endured. Her parents had been dead about ten years, the father succumbing after a period of incapacity from diabetes and cerebral thrombosis, which left him paralyzed and bedridden. During this period, she was quite attentive to him, while her sister lived elsewhere. After his death, she carried on, but felt dispirited and had spells of weeping when alone. On the surface, she gave the impression of functioning quite well and with seeming perfect propriety meeting all her social obligations. But she felt that this was only "half of herself," the other half being dead. Finally, her husband died, following which there was more grief, and while the picture of self-control continued, it was not as marked. She had a number of dreams about buzzards, and elaborated upon her aversion and aesthetic repulsion to them. Eventually, she talked about her father's bier, and how she was impressed by his being "so pale—so deathly pale." "Something happened—something profound," she said, because after this she didn't seem to have any emotion. It was only a functioning—"as if" she emotionally participated. She was there, but really as only "half of herself." She had longings for love, but not like before. Her appetite was not the same, and when she was building up to the anemia, or when anemic, she had no appetite, and subsisted mostly on orange juice and coffee. During her non-anemic periods, she would become interested in the stock market and business affairs. With the stock market, she was successful and showed good judgment in her selections. She ate during these non-anemic periods and curiously read a great deal about mental telepathy. When she was anemic, she lost her interest in mental telepathy. She increased her sedatives to combat her chronic insomnia when non-anemic, because to go to sleep was to be like the (live) mother sleeping, which she felt was the only way she could be fully loved. Yet she was fearful of such love from the father. To sleep also meant that she might be caught off guard by a retaliating mother (kept alive), when

she also kept father alive. To be awake and alive, however, was not to be loved, rather it was living without father, with whom she identified to keep alive. Therefore the only solution was identification with the dead father and thus find communion with him. Here one sees two identifications: one with a live person she kept alive—whom she loved, but was fearful of; the other with a dead person with whom she safely communed. The former coincided with the non-anemic phase, and the latter with the anemic phase. None of my colleagues ever adequately explained the anemia.

Case 3. A 15 year old girl sought help for Raynaud's disease. She felt a strong sense of responsibility toward two younger siblings and burdened herself a great deal in looking after them. About two years before her grandfather had died; thereafter her father again abandoned the family. Her mother became a waitress in a restaurant-bar, bringing men friends home, and frequently she would have "an uncle" around for awhile. From early life, the grandfather would get drunk and threaten the mother with a drawn knife, and often the mother and the patient made their escape through a window. He brutally punished the patient. Her father, too, beat her unmercifully. Her parents fought openly with knives, having cut one another on numerous occasions. She felt that she had only one mission—to help her brother and sister. Her dreams contained material of throwing older women out of windows and of hearing a man fall, with bones crushing. In spite of her terror of her grandfather, he was all she had that approached the semblance of a love relationship. She felt now that he was dead, he must be free from it all, since he was the first of the family to die. She felt he was loved among them all, and to be dead, she fantasied, was the only way she could be loved. Her symptoms came on shortly after the death of her grandfather. She had dated boys, but was supersensitive to their advances and gave greater significance to their erotic actions than was intended. She was self-reproachful, feeling that her behavior would not be approved by her grandfather and father. It would appear that she was identifying with the dead grandfather, around whom much of her early life was centered. Through this identification, she was doing penance not only for her guilt about her death wishes toward him and her parent, but also for her sexual behavior which she felt they would disapprove of. She could consolidate her love, once the grandfather was dead, and identify with him. Her main expression was that her "legs were dead."

Case 4. A 36 year old physician in the course of therapy for a compulsion neurosis, one day found himself looking at a male manikin in a store window. He was fascinated as it was being dressed. Over its arms and legs there was some sort of material that looked like ace bandage. The patient was so attracted to the manikin that he would stand entranced, imagining how nice it would be to be looked at, admired, and have everything done for him as the manikin had. At times while sitting, he would feel stiff, as though he would have to be moved. While walking he felt that he was being helped along. He associated the manikin with someone who had been injured and was being attended. His history revealed that he had sustained nine bone injuries to the extremities over the first seventeen years of life. He was the only son of a busy country practitioner and of an over-solicitous mother. His injuries drew the parents closer together, and his father particularly gave much time to the patient. It is clear what this identification is, and how it serves his strong passive-dependent needs.

This study illustrates how identifications can be marshalled to neutralize tension and maintain internal equilibrium in a person under stress. By recognizing these as adaptive measures, with an understanding of their utility and purpose, effective therapeutic results can often be achieved.

New Orleans, Louisiana.

National Society for Crippled Children and Adults
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Medicolegal Aspects of the Doctor-Patient Relationship

LEWIS J. SIEGAL, M.D., LL.B.

(Continued from December 1956)

The confidential relationship between physician and patient otherwise exists and communications between them are privileged unless expressly waived by the patient (People v Eckert, 142 N. Y. S. 2nd 657). However, if the patient testifies as to the professional communications, the privilege of confidential physician-patient relation is deemed waived. The statutory enactment of privilege bars disclosure of all information by the attending registered nurse and of knowledge acquired by the physician through examination, symptoms or statement made by the patient during professional attendance upon him. The purpose of the statute is to prevent possible resultant humiliation, embarrassment, or disgrace to the patient. (Civil Practice Act Sec's 352 and 354; N. Y. City Council v. Goldwater, 284 N. Y. 296; In re: Lincoln Hospital, 20 N. Y. S. 2nd 717; Westphal v. State, 79 N. Y. S. 2nd 634; In re: Cleveland's Will, 78 N. Y. S. 2nd 897; Eder v. Cashin, 120 N. Y. S. 2nd 165; Woernley v. Electromatic Typewriter, 271 N. Y. 228.)

It should be noted that the statutory provision against disclosure by the physician or registered nurse, of information acquired in professionally attending a patient does not extend to descriptive matters of the patient's physical surroundings, or to those attending to him, or to companions, or to conversations verheard between the patient and third persons or to the patient's reactions to the conduct or acts of third persons (In re: Schermerhorn, 302 N. Y. 660). Thus the physician is not prohibited from testifying to such ordinary incidents and facts as are plain to observation of any one without professional knowledge. (McGrath v. State, 104 N. Y. S. 2nd 882.)

Under New York statute law the physician may not testify to facts which are necessary in diagnosis or treatment unless the patient has waived the privilege, or, if the patient is no longer alive, the personal representatives of the deceased have expressly so waived the privilege of withholding such information. Exceptions are the disclosure of the mental condition of the patient who is deceased, or acquired facts by the physician which would tend to disgrace the deceased's memory. (Barnes v. Union Central Life Ins. Co., 20 N. Y. S. 2nd 675.) Hence, where a will is contested, the treating physician is not permitted to testify as to alleged physical or mental incapacity of a deceased former patient which information the physician had acquired from the deceased who had reposed confidence in the doctor (In re: Coddington's Will, 307 N. Y. 181). This is a proper matter for the jury. Privilege attaches equally to x-rays and examination reports made in aid of diagnosis and treatment, even though disclosure is sought other than by direct examination of the physician. (Hurd v. Republic Steel Corp., 91 N. Y. S. 2nd 763.)

The rule of privilege does not alter the duty respecting rendition of medical reports which, under health department regulations, public health laws and the Penal Law must be submitted by physicians. Included, are cases which require reporting of vital statistics, of contagion, of unusual injuries or narcotic addiction, of suspicious acts of violence and of injuries due to commission of an abortion. Reporting under these regulations protects the health, peace and good order of the community, and as a matter of public policy is not protected by the rule of privilege.

In this connection it is well to note that information obtained from an autopsy and evidence given thereon by the pathologist is not considered a privileged communication because a body ceases to be a "patient" on death. (Felska v. John Hancock Ins. Co., 259 N. Y. S. 35; Travelers Ins. Co. v. Bergeron, 25 Fed. 2nd 680.)

The records of known or suspected carriers of disease, maintained pursuant to Public Health Law and the Sanitary Code are not privileged. This is by special enactment as a matter of necessity and public policy and in obedience to the express direction of the New York Public Health Law. (Munzer v. State, 41 N. Y. S. 2nd 98; Public Health

Law, Sec. 25; Civil Practice Act, Section 352; Mental Hygiene Law, Section 84.) Were such records hidden in the files of the health office, they would be merely statistical and would serve to no effect to check the spread of a communicable disease by a known carrier, who if not identified, might be engaged in preparing and handling food to be served to the public to the latter's peril. (Thomas v. Morris, 286 N. Y. 266.)

No person either suspected or accused of murder has a right to be present in person or to be represented by a physician at the post-mortem examination of the body of the deceased. (Crisfield v. Perine, 81 N. Y. 622.)

From the foregoing, we perceive a law which delineates the obligations respecting the confidential relation owed by the physician to his patient as codified by statute. As to civil cases, including the legal adjudication in the matter of wills and decedent estates, this law governs and provides that the physician shall not be permitted to disclose information acquired in attending a patient in a professional capacity; and this privilege exists for the benefit of the patient unless he expressly waives it, or it is deemed waived by operation of law.

However, regardless of the ethical aspect, in those states of the Union where statute law relating to secrets imparted to the doctor necessary to his professional treatment of the patient, has been adopted, this privilege of keeping the communication inviolate does not extend to the person charged with a criminal act. Under presently existing statute, the latter individual once a defendant, even before he is convicted and found guilty of the crime with which charged, is unable to avail himself of the privilege and protection respecting the secrets imparted to the treating doctor in his professional capacity and communications by the defendant to the treating doctor are admitted into evidence. Even a defendant's own physician could be called upon to give testimony acquired during rendition of medical services if the interests of public justice require it. The application of this criterion of "public justice" has been held to be a matter of discretion with the trial justice. This was so stated in the case of Catoe v. U. S. which was decided in the Court of Appeals for the District of Columbia October 5, 1942. An old New York case (People v. Sliney, 137 N. Y. 570), inferentially stands for the proposition that even though the doctor had acted as a professional adviser of a defendant charged with a crime, nevertheless no privilege would accrue to the defendant and the physician would be obliged to give testimony as to what defendant stated to him about his criminality.

In the interest of the protection of privilege against self-incrimination, confessions, declarations and statements of previous guilt-ridden, long hidden acts, thoughts, or situations, whether said historical information had been obtained by an examining medical expert employed by the court or prosecution or whether so employed as the examinee's own personal medical attendant—such historical facts thus medically acquired in order to form an opinion as to the nature and extent of the illness of the examinee presently charged with the commission of a crime, should, in the author's opinion, be held inviolate. Under our American system of jurisprudence, a person charged as a defendant with the commission of a criminal act against society should not be put in jeopardy and should be presumed free of guilt unless and until, as a defendant, he has been convicted and found guilty after trial, beyond a reasonable doubt—and not upon evidence which would include the use of testimonial compulsion of confidential information which had been acquired from a professional medical source. The latter, if permitted, would be tantamount to the mandatory procurement from the defendant-examinee of testimony against himself obtained in an unsuspecting atmosphere.

Accordingly, the author, as a member of the Committee of Legal Aspects of Psychiatry of the American Psychiatric Association, prepared and presented to said Committee a model draft of a suggested text of a uniform act applicable to criminal proceedings involving psychiatric situations where privileged communications are in issue. The text of the draft as presented for sponsorship through the American Psychiatric Association via appropriate legislative sources to the 48 states, follows:

Suggested Text of Uniform Act Applicable to Criminal Proceedings Where Privileged Communications in Psychiatric Cases Are in Issue.

Any person who shall be charged with crime, shall be directed by the court to submit to psychiatric examination where psychopathological manifestations may warrant. The psychiatric examination shall be conducted by one or more qualified psychiatrists appointed by the court; and when so designated, shall be required, upon completion of said examination, to report written findings thereof to the court. Said psychiatrist or psychiatrists, if there be more than one, shall, in addition, be required to give oral testimony respecting the mental condition of the examinee.

It shall be lawful for said psychiatric examiner or examiners if there be more than one, to disclose the facts upon which the diagnostic and prognostic findings regarding the examinee's present condition are predicated. Except as herein provided, it shall be unlawful for said psychiatric examiner or examiners, if there be more than one, to report to the court either in writing, or to give oral testimony as to confessed information obtained from the examinee during the course of a psychiatric examination, where the evidence may disclose that examinee had committed prior antisocial acts or prior offenses against society not bearing upon the crime with which presently charged, nor bearing upon historical data involving any past offenses committed against society which examinee may confess during the process of the psychiatric examination directed by the court because of the crime with which presently charged.

Where the psychiatric examination had as hereinbefore provided, produces evidence that examinee has been unable to conduct himself with due regard for the safety of himself or others within his environment, where his motivations and behavior are inappropriate and impaired and where the gravity of his mental disorder indicates the need of close psychiatric supervision, this aberrant behavior shall be sufficient reason to permit and require reportorial written psychiatric findings together with oral testimony by the psychiatric findings together with oral testimony by the psychiatric examiner or examiners if there be more than one, respecting the present mental condition and the ability of the examinee to stand trial for the crime with which presently charged, or recommendation for confinement within a mental hospital setting because of personality deviation or disorganization.

Except as hereinbefore provided nothing herein contained shall prevent or prohibit psychiatric and/or prognostic disclosure of medical facts necessary to establish diagnosis, prognosis and/or treatment where psychiatric examination had been performed by one or more psychiatrists appointed by the court to examine the person charged with the present crime, nor shall said examiner or examiners become civilly liable to the examinee or to any other person, irrespective of whether examinee expressly waived said disclosure and/or whether or not the examinee's communication was obtained by said examiner or examiners during professional attendance upon the examinee through examination, observation, symptoms, or history elicited from the examinee.

As the law now stands in the State of New York, a physician sent by the prosecuting attorney to ascertain and make a report upon the sanity of a defendant charged with a crime is permitted to testify as to what defendant stated to him about the matter of the crime. This is construed to be no such disclosure of a communication which is privileged under the statute, because no physician-patient relationship exists, and the information obtained by the examiner was not acquired during the examination of a patient, nor while acting as the professional adviser of the defendant. (People v. Sliney, 137 N. Y. 570.) The examination, by a physician, of a person accused of crime, at the special employment of the People, for the purposes of the prosecution, is not deemed to be the attending of a patient in a professional capacity, and the physician is not rendered incompetent, on that ground, to disclose information acquired by him in such examination. (People v. Hoch, 150 N. Y. 291.)

In determining whether a defendant possesses the capacity to understand a criminal charge pending against him or to make his defense thereto, the opinions of experts are entitled to consideration but are not conclusive upon the court, and the court is required to apply not medical tests but must act as the judge of facts at issue as well as the law, and must apply the test of common sense as a jury would do, and must weigh the validity of the evidence and base its opinion in part upon its direct observation of the action and the demeanor of the defendant himself, just as a jury is permitted to do. (People v. Wolfe, 103 N. Y. S. 2nd 479.)

A person judicially declared incompetent to manage his affairs is not, as matter of law, disqualified from testifying under certain conditions, but he must first be examined as to whether he has sufficient understanding of facts to be truthful and to describe simple occurrences in order to help the court to make its final decision on the question of competency. (DeRosa v. Viggiano, 81 N. Y. S. 2nd 481; Civil Practice Act, Section 365.) The court may examine and may make full inquiry of others regarding an infant or a person apparently of weak intellect to ascertain his capacity and the extent of his knowledge, before he is sworn as a proposed witness. (Ellarson v. Ellarson, 198 App. Div. 103.)

An agreement for payment conditioned upon the outcome of the suit, calling for compensation in excess of the legal fee for

attending as a witness and testifying to facts only within his knowledge, is a contract which is contrary to public policy and is therefore illegal. (Clifford v. Hughes, 124 N. Y. S. 478; 128 Fed. 2nd 630.) Physicians should remain ever alert to this principle of law!

If a medical witness, or other witness with technical qualifications, goes beyond mere testifying to facts observed by the senses, and he is asked to draw a technical inference or conclusion, he may properly demand compensation as an expert, though he was the attending physician of the person in respect of whose condition he testifies. Thus, although a physician may be required to testify as to facts, as any other witness, without compensation other than the legal witness fee, he cannot be required to testify as to his professional opinion and may refuse unless he be compensated by a professional fee. This is based upon the settled law that a "litigant has no more right to compel a citizen to give up the product of his brain than he has to compel the giving up of material things." (Birch v. Sees, 165 N. Y. S. 846.)

Where a physician testifies as an expert witness and knows the facts of the case from his own personal observation, he may be required to give his opinion without stating the facts upon which he bases his opinion. However, when the medical expert has no personal knowledge of the case, his opinion must follow upon facts hypothetically recited to him, and it is upon such assumed facts that he must base his opinion. (Christastie v. Elmira, 195 N. Y. S. 156.)

Where a patient of substantial means gains admission to ward accommodations in a public or charitably supported hospital through fraud and misrepresentation of his financial status, he becomes liable to the physician for the reasonable value of the services rendered. (Matter of Agnew, 231 N. Y. S. 4; 111 N. Y. S. 2nd 24; 116 N. Y. S. 2nd 243.) A surgeon who performs a major surgical operation upon a patient admitted to the hospital as a charity case through the out-patient department, without having knowledge that the patient was at that time a wealhy man, is entitled to recover the reasonable value of the services based on the patient's financial standing. This is founded upon the recognition that as a social necessity, those able to pay, especially for the best, should pay adequately and liberally in any case, to avoid the social danger incurred either in allowing those less able or unable to pay, to go about the community in a diseased, untreated condition. Staff members of a hospital are neither servants nor agents of the hospital but act in an independent undertaking. As regards paupers, the medical staff, out of traditional charity of their profession, and in aid of scientific advancement and of social betterment, undertake to treat gratuitously, in the hospital, those who have not the means to recompense the medical man who renders the service.

The New York State Education law as amended during the 1956 legislative session provides that an unlicensed physician under a non-immigration visa for the continuation of medical study may be employed by a licensed proprietary hospital provided he obtains a temporary certificate issued by the State Education Department, the certificate to show that the unlicensed physician is eligible to admission to the licensure examination in New York State. The certificate must be obtained from or be denied by the Education Department within three months of the applicant's employment by the hospital. If granted it is valid for two years, renewable at the discretion of the Board of Regents, and requires that the certificate holder is to be employed under supervision of a full-time hospital-employed licensed physician. (Education Law, Section 6512 b 1, 2, 3.)

Under a new section, 35-b of the New York State Social Welfare law enacted April 4, 1956, only physicians duly licensed by the State Department of Education and partnerships of such physicians may operate hospitals for profit (i.e. private hospitals) except such hospitals as are in operation on the date this section takes effect, which are licensed pursuant to law or are approved by the State Department of Social Welfare.

Section 71, under the amended New York State Mental Hygiene law of 1956, provides that both State operated and licensed private institutions may accept patients 18 years and over (formerly 21 years minimum age)

for treatment on a voluntary basis for a period of 60 days; and upon patient's notice within 15 days thereafter, he must be permitted to leave the institution. Within 10 days after admission, the physician in charge must forward to the Department of Mental Hygiene a record of the patient for that department's determination if the patient belongs to the voluntary class and decision as to the patient's certification or discharge.

Section 152 of the same law, now provides for similar procedure in respect of acceptance of those patients 18 years and over (formerly 21 years minimum age) who present acceptable evidence that they are suffering from epilepsy and who apply for treatment on a voluntary basis.

Under the 1956 New York State legislative enactment, attending physicians as well as medical consultants are required to transmit copies of medical reports to the patient's licensed representative or attorney representing the claimant before the Workmen's Compensation Board upon his written request accompanied by a notice of the lawyer's retainer and consent to such transmittal signed by the claimant. Failure to supply such reports constitutes grounds for revoking the right to treat compensation cases. (Section 13 (e) Workmen's Compensation Law.)

In the conduct of his profession, the physician's obligations are bound up with many, and as we have seen, involved aspects of legal responsibilities both in respect of his patient and of the locality wherein he engages in his professional practice. To avoid the risk of involvement and to keep clear of legal breaches, it therefore becomes prudent for the physician to acquire some general understanding of the principles of medicine and their many-sided principles of legal precepts, particularly as they apply to rules of conduct, action and procedures where medical comportment calls for conformity with the law. The physician's interests also require consideration of the problem flowing from his peculiar duties, privileges and responsibilities which legally devolve upon him and his relationship to his patient and the community. Not the least of these responsibilities is the intriguing malpractice situation, the patient's interest therein, and the likelihood of the doctor's involvement in the occupational hazard of a justifiable or unjustifiable legal action against him.

There are several categories of legal actions which may be brought against a physician because of the elements of risk involved in the practice of his profession. The two most common types of complication in the physician-patient relationship which may expose the doctor to a suit at law, are civil and criminal malpractice.

Civil Malpractice subjects the physician to a cause of civil action arising out of contract inferred or spelled out by law, for money damages for injury which plaintiff alleges he sustained through the physician's negligent treatment. For the plaintiff to be enabled to establish a prima facie case, it is required that his complaint contain a sufficient statement of facts such as will outweigh the presumption of innocence if unexplained or uncontroverted by the defendant physician's opposing evidence. Once the plaintiff has been able to establish a prima facie cause of action, he must also be in a position to prove that defendant physician has failed in a legal duty which is to act in accordance with the standard of conduct required for the protection of others against unreasonable hazards. In addition to proving these two elements (i.e. duty and a breach thereof) plaintiff must also be able to prove that the defendant physician's negligent conduct was the direct cause of the damage or actual loss resulting to the plaintiff. If plaintiff's proof demonstrates a fair preponderance of credible and convincing evidence, the plaintiff is entitled to have his case considered by the jury for its verdict. Should the plaintiff be unable to establish a prima facie case, the defendant physician becomes entitled, as matter of law, to move for a verdict in his favor. Where the plaintiff has been able to establish a prima facie case, the defendant physician may avoid responsibility if he can prove that the plaintiff was contributorily negligent. An example of the latter would be the refusal by the plaintiff or his family to allow auxiliary nursing or medical assistance which the defendant physician asked for, during the administration of treatment to the plaintiff.

Criminal Malpractice, which grows out of, or is founded upon a legal wrong, subjects the physician to criminal action. Here the state, and not an individual, institutes the proceeding. It may be predicated upon a violation of any of a number of the already referred to specific duties and acts, imposed by law upon the physician. Among these acts and duties the noncompliance with which, subject the physician to criminal liability are: failure to file true certificates of births and deaths, evasion or violation of the narcotic laws, performance of illegal operations, medical treatment eventuating in indictment for negligent homicide (as where the physician's gross ignorance or gross negligence resulted in the patient's death), or involuntary manslaughter (as where the physician's act, forbidden by law, resulted in the patient's death).

It is well for the physician to acquaint himself with the statute of limitations of his locality in respect of malpractice, so that he may be apprised of the period of time after which the commencement of a lawsuit against him for negligence as a malpractice action, may be barred, subject to certain exceptions (e.g., continuing negligence, as where a foreign object is left in the patient's tissues). In New York State there is a two-year malpractice statute of limitation starting from the time the negligent act took place. A similar limitation exists in 25 other states, a one-year period in ten states, a three-year period in nine, a six-year period in three, and an eight-year period in Wyoming.

Where a physician sues to recover the value of his professional services a counterclaim by the defendant alleging malpractice by the physician in the performance of those services, is barred after the malpractice statute of limitation has run out, and cannot thereafter be interposed by defendant as a counterclaim. Under the New York Law, Section 50, Civil Practice Act provides, that malpractice actions must be commenced within two years after the cause accrues or they cannot be maintained. Hence all counterclaims which could not have been used in an affirmative action for malpratice are outlawed if interposed after the two-year period had run. The statute of limitations on contract actions, including professional services, is six years in most states.

Although a physician brings suit to collect a professional fee and obtains a judgment by default where the patient failed to defend the action, it is no bar to the patient to commence his own independent lawsuit against the doctor before the malpractice statute of limitation period expires, for damages caused by malpractice in the performance of the professional services (Fish v. Conley, 222 App. Div. 609).

In New York State the courts are divided on the important proposition of concern to the physician, as to whether an industrially injured patient who had been awarded compensation under the Workmen's Compensation Act, can subsequently sue for malpractice and recover money damages from the physician who had given the treatment, if the negligent treatment had not merely aggravated the original injury but had caused a new injury. One New York case (White v. Matthews, 223 N. Y. S. 415) held that the physician is absolved in such a situation, while another court decided on a similar state of facts (Hoehn v. Schenck, 223 N. Y. S. 418) that where the malpractice had resulted in a new injury, the physician is liable in damages. This latter holding is based upon the reasoning that the patient cannot attach a charge against the employer for damage for the new injury that did not occur as an industrial accident. The new injury was the creation of the treating physician against whom the negligence therefor is charged.

I have tried to select a synopsis of the more important legal principles applicable to medical practice where they may include as a consequence, the medicolegal aspects of the physician-patient relationship. With the rapidly changing concepts of our time, particularly within the spheres of the professions of law and medicine, it behoves us as physicians to keep abreast of the significant developments in medicolegal progress and to correlate their applicable effects.

Lawyers when discussing the concepts of medical conditions and their relevant legal implications, lay stress upon the physician's need to keep abreast of the applicable principles of law and its statutory interpreta-

tions. Physicians on the other hand, are prone to feel that it is up to the legal profession to educate itself in the trends of the advances of medical science to the end that its members be equipped to understandingly apply existing legal procedures to fit the framework of current scientific medical principles.

Law, criminal and civil, had its origin in the minds of men, living within social groups, in close association and participating in common interests. The legal system continues as an ever-expanding device designed to afford equable protection to society and to prevent, as well as redress encroachment upon it by perverse personalities, as well as to balk the escape by discordant elements, of their answerable obligations.

The objectives of law and medicine, despite being in different professions, are strikingly susceptible of comparison. They share the conjoined interest and purpose of correlating the concepts of mental and physical disablement and the legal impact thereof upon social orderliness as may be determined by juridical ruling upon the nature of the involving circumstances and adjudications of the responsibility therefor.

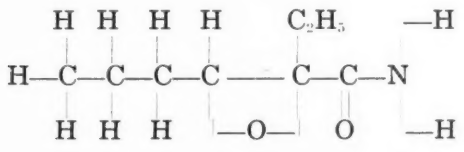
It is this closeness of interest between the provinces of law and medicine and the influence exerted by the dicta of both professions upon society's welfare, that should stimulate men of medicine to greater methodical familiarity with the advancing reforms in the processes of law. In furtherance of better understanding of legal rules and statutes where they may ultimately devolve upon the rights and collateral duties of the physician, and his ability to supply answers to social problems in human situations laden with legalistic circumstances, it is hoped that this effort put forth on the subject of medicolegal complexities of the doctor-patient relationship will serve in some measure to translate the role of the physician and to guide him through the maze of notions and philosophies where medicolegal concepts are in issue.

115 East 61st Street, New York, N. Y.

Quiactin: An Adjunct in the Treatment of Chronic Psychoses

CHARLES D. FEUSS, M.D., and LOGAN GRAGG, JR., M.D.

Quiactin is 2-ethyl-3-propylglycidamide. It occurs as a tasteless, white, crystalline solid with little or no odor. One part is soluble in 95 parts of water at 30°C.



Quiactin is chemically unrelated to other sedative or tranquilizing agents in present psychiatric use. The pharmacologic properties in experimental animals were described by Warren, Thompson and Werner.[1] Hypnotic activity was demonstrated following intravenous administration in rabbits and oral administration in rats. In comparative studise, the minimal hypnotic dose when given intravenously was 57 mg./Kg. for Quiactin and 8.3./Kg. for pentobarbital. Orally, the comparable doses were 525 mg./Kg. for Quiactin and 63 mg./Kg. for pentobarbital.

The margin of safety appears to be at least as wide for Quiactin as for pentobarbital. The intravenous LD_{50} could not be determined because in dosage equivalent to 360 mg./Kg., the vehicle (propylene glycol) alone was lethal for half the animals. In rabbits, the intravenous LD_{50} for Quiactin, therefore, is something more than 360 mg./Kg., to be compared with 33 mg./Kg. under similar conditions for pentobarbital. Orally, the LD_{50} in rats is 1,360 mg./Kg., compared with 129 mg./Kg. for pentobarbital. It will be seen, then, that to produce hypnotic effects in experimental animals it generally takes a little less than ten times as much Quiactin as pentobarbital, but to produce

lethal effects it takes a little more than ten times the pentobarbital dose.

Chronic safety data have been reported from studies on rats, dogs, and monkeys with oral doses of 50 to 200 mg./Kg./day for periods up to eight weeks. The weight curves, blood counts, and general behavior were normal during the test period and at the end of the period the vital organs appeared grossly and microscopically normal after the animals had been sacrificed.

In a further attempt to characterize the pharmacologic effect of Quiactin, the mutually antagonistic actions with Metrazol were studied in mice and rabbits.[1] The administration of 2 Gm./Kg. of Quiactin orally two hours prior to the subcutaneous administration of 0.125 Gm./Kg. of Metrazol prevented convulsions and mortality in each of 36 mice, and the Metrazol caused arousal from the hypnosis produced by Quiactin. This dose of Metrazol alone produced severe convulsions with 100 per cent mortality in a separate group of 24 mice.

In other experiments, intravenous doses of 70 to 90 mg./Kg. of Metrazol effected complete arousal in each of 12 rabbits depressed by the intravenous injection of 140 mg./Kg. (i.e., twice the minimal hypnotic dose) of Quiactin. It appears, therefore, that Metrazol should be considered a potential antidote for accidental or intentional (i.e., suicidal) overdosage with Quiactin.

First Group of Thirteen Patients

In the hope that Quiactin might influence the behavior of psychotic patients, there was first selected for therapeutic trial a group of 13 white, female patients classified as "chronically irritated." All these women worked in the laundry under strict supervision. Although they could work, they were quarrelsome and spent a great deal of their time arguing and quarreling among themselves. They were grouped together because of their behavior rather than by etiologic diagnosis.

For 30 days these women were on Quiactin in varying doses as shown in Table One. They continued their work with no drop in efficiency; they quarreled very little among themselves, slept soundly every night, and as a group they experienced improvement in appetite.

All patients were given electric shock as required but because of the chronicity of their condition they received shock only when they became disturbed. This averaged for the group 5 to 6 ECT's per week. During the month, with treatment on Quiactin it was necessary to give only one ECT to one patient.

Patients were given ground privileges in this group by the regular committee for privileging patients for activity. Of the 13 women, 6 gained privileges during this period.

All patients showed improvement in general behavior, seemed happier and slept well. Six of the patients seemed greatly improved; 4 seemed moderately improved; and 3 seemed only slightly improved. Individual responses are indicated in Table One.

TABLE ONE

Patient	Age	Diagnosis	Daily Dose of Quiactin	Results After 30 Days
M.P.	40 yrs.	Schizophrenic, paranoid	4 x 0.4 Gm.	Much improved — privileged
M.A.	40 yrs.	Mental defective with psychosis	4 x 0.4 Gm.	Improved
M.N.	50 yrs.	Chronic schizophrenic, undifferentiated	2 x 0.4 Gm.	Much improved — privileged
J.M.	53 yrs.	Schizophrenic, hebephrenic	6 x 0.4 Gm.	Improved
J.R.	59 yrs.	Involutional psychosis	6 x 0.4 Gm.	Slightly improved
F.O.	42 yrs.	Paresis (residual)	6 x 0.4 Gm.	Much improved — privileged
E.C.	43 yrs.	Schizophrenic, catatonic	6 x 0.4 Gm.	Much improved
G.C.	26 yrs.	Schizophrenic, catatonic	4 x 0.4 Gm.	Much improved — privileged
K.McQ.	22 yrs.	Schizophrenic, hebephrenic	4 x 0.4 Gm.	Improved
K.C.	59 yrs.	Schizophrenic, hebephrenic	4 x 0.4 Gm.	Slightly improved
S.G.	50 yrs.	Mental defective with psychosis	4 x 0.4 Gm.	Improved — privileged
A.McC.	55 yrs.	Manic depressive, manic	4 x 0.4 Gm.	Slightly improved
M.M.	67 yrs.	Schizophrenic, paranoid	2 x 0.4 Gm.	Much improved — privileged

Expanded Study of Quiactin

Encouraged by the preliminary observations, the group of patients has been increased during the past year to a total of 60. Results are summarized in Tables Two to Six, prepared at the end of a 12-month period. Included are follow-up data on the first 13 patients. These patients were suffering from a variety of chronic, psychotic illnesses.

All routines were continued as before the drug and the patients were informed that the 0.4 Gm. tablets of Quiactin were vitamins. There was no selectivity exercised among these chronic patients except that they were in certain areas of the hospital and not undergoing other somatic therapy. Each course of treatment was for a period of three months.

At the end of 12 months the results were evaluated in these 60 patients. In four patients social readjustment was obtained with no return of symptoms after withdrawal of the drug. These patients (Table Two) have been discharged from the hospital. The other 56 patients reverted to their former condition within weeks following the last dose of Quiactin. Of these, there were 14 (Table Three) who did so well on the drug that visits home for temporary periods were permitted. It is possible that they will require continuous maintenance therapy. In addition, 12 were sufficiently improved to be granted ground privileges (Table Four). Some improvement in ward adjustment was noted in 7 others (Table Five) and there were 23 failures (Table Six).

The 14 who showed the best results were arbitrarily divided into 2 groups after they had reverted to near their old behavior level; 7 were given the drug and returned to the excellent behavior of before, while 7 others were given a placebo. Five of the latter group showed no improvement and 2 showed only a slight improvement. During this period only the experimenter, not ward or nursing personnel, knew which patients were receiving which drug. This portion of the experiment illustrated that when Quiactin is helpful the benefit is due to the action of the drug rather than to the attention of the personnel.

In the 6 patients with convulsive disorders along with behavior difficulties, only one showed any improvement, and this was not striking. This group was the only one to show consistently poor results on the drug when grouped by diagnosis but in none of these cases were the convulsions more severe or more frequent.

In the 7 cerebral arteriosclerotic patients, behavior results were excellent in 5 cases. This showed the best correlation of good results with a diagnosis.

Patients became somewhat sleepy during the day when large doses were given. This varied with the patients, and when they complained of fatigue, the dose was cut by

TABLE TWO

Three-Month Response Social Readjustment

(Discharged from Hospital)

Patient	Diagnosis	Daily Dosage of Quiactin
E.C.	Schizophrenic reaction, catatonic	4.8 Gm.
N.R.	Schizophrenic reaction, paranoid	0.8 Gm.
R.D.	Chronic brain syndrome associated with cerebral arteriosclerosis	1.2 Gm.
G.W.	Schizophrenic reaction, hebephrenic	4.8 Gm.

TABLE THREE

Three-Month Response Excellent

(Good Adjustment in Hospital; Able to Make Temporary Visits Home)

Patient	Diagnosis	Daily Dosage of Quiactin
F.H.	Chronic brain syndrome associated with cerebral arteriosclerosis	1.2 Gm.
G.C.	Chronic brain syndrome associated with cerebral arteriosclerosis	1.2 Gm.
H.N.	Chronic brain syndrome associated with cerebral arteriosclerosis	1.2 Gm.
E.A.	Mental defective with psychosis	1.6 Gm.
F.H.	Mental defective with psychosis	2.4 Gm.
M.L.	Chronic brain syndrome associated with convulsive disorder	1.6 Gm.
I.J.F.	Schizophrenic reaction, catatonic type	2.4 Gm.
M.A.	Mental defective with psychosis	1.6 Gm.
A.McC.	Manic depressive, manic	1.6 Gm.
M.P.	Schizophrenic reaction, paranoid	2.4 Gm.
G.C.	Schizophrenic reaction, catatonic	1.6 Gm.
L.W.W.	Chronic brain syndrome associated with cerebral arteriosclerosis	1.6 Gm.
L.L.	Manic depressive, manic	3.6 Gm.
V.M.	Chronic brain syndrome associated	4.8 Gm.

TABLE FOUR

Three-Month Response Good

(Good Adjustment in Hospital; Received Ground Privileges)

Patient	Diagnosis	Daily Dosage of Quiactin
A.A.	Mental defective with psychosis	3.6 Gm.
A.A.	Schizophrenic reaction, paranoid	2.4 Gm.
S.G.	Mental defective, idiopathic, moderate, psychotic reaction	1.6 Gm.
M.N.	Schizophrenic reaction, undifferentiated	2.4 Gm.
J.R.	Involutional psychotic reaction	2.4 Gm.
J.M.	Schizophrenic reaction, hebephrenic	2.4 Gm.
F.O.	Psychosis with syphilis, CNS, M. E. type	3.2 Gm.
E.P.	Schizophrenic reaction, paranoid	2.4 Gm.
N.W.	Schizophrenic reaction, hebephrenic	1.6 Gm.
C.C.	Manic depressive, manic	2.4 Gm.
L.F.	Schizophrenic reaction, simple	2.4 Gm.
W.S.	Manic depressive, depressive	2.4 Gm.

TABLE FIVE

Three-Month Response Fair

(Better Ward Adjustment; No Ground Privileges)

Patient	Diagnosis	Daily Dosage of Quiactin
W.H.H.	Chronic brain syndrome associated with convulsive disorder	2.4 Gm.
L.G.	Schizophrenic reaction, hebephrenic	3.6 Gm.
K.C.	Schizophrenic reaction, hebephrenic	2.4 Gm.
M.M.	Schizophrenic reaction, paranoid	1.6 Gm.
L.McQ.	Schizophrenic reaction, hebephrenic	2.4 Gm.
J.G.	Manic depressive, manic	2.4 Gm.
O.M.L.	Psychosis with syphilis, CNS, M. E. type	2.4 Gm.

one tablet and the patient maintained on this dosage. The minimum dosage was 0.8 Gm. a day; the maximum, 4.8 Gm. a day.

There was a subjective pleasure in taking the tablets; only the most severely disturbed and paranoid objected to taking the medication and most patients asked to be continued on it after the experiment was discontinued. This was remarkable because the same group disliked taking some of the other psychiatric drugs.

Blood counts, blood pressure, renal and liver function tests were routinely performed, with no signs of toxicity ever being present. This confirms the animal safety data obtained with Quiactin.

Three patients unable to go to occupational therapy before being placed on the drug have their O. T. progress notes listed as examples. Patients were on Quiactin approximately one week and then assigned to O. T.

Case 1: Miss F. Age 21. Schizophrenic reaction, catatonic type, in a moderate mental defective.

Admitted—August 6, 1954.

First visit to O. T.—June 21, 1955.

Report dated—August 29, 1955.

TABLE SIX

Failures

Patient	Diagnosis	Daily Dosage of Quiactin
O.McG.	Chronic brain syndrome associated with cerebral arteriosclerosis	1.6 Gm.
L.M.	Chronic brain syndrome associated with cerebral arteriosclerosis	1.6 Gm.
E.C.	Chronic brain syndrome with convulsive disorder	2.4 Gm.
B.O.	Chronic brain syndrome associated with convulsive disorder	1.6 Gm.
M.P.	Chronic brain syndrome associated with convulsive disorder	1.6 Gm.
E.S.	Schizophrenic reaction, catatonic type	2.4 Gm.
V.W.	Schizophrenic reaction, hebephrenic type	1.6 Gm.
E.T.	Chronic brain syndrome associated with convulsive disorder	2.4 Gm.
M.C.	Schizophrenic reaction, schizoaffective type	4.8 Gm.
L.F.	Schizophrenic reaction, paranoid type	3.6 Gm.
G.M.	Schizophrenic reaction, hebephrenic type	2.4 Gm.
O.W.	Schizophrenic reaction, hebephrenic type	2.4 Gm.
E.M.H.	Schizophrenic reaction, catatonic	2.4 Gm.
P.C.	Mental defective, idiopathic, severe, psychotic reaction	1.6 Gm.
H.N.	Schizophrenic reaction, hebephrenic	2.4 Gm.
E.J.	Schizophrenic reaction	1.2 Gm.
L.W.	Schizophrenic reaction, paranoid	2.4 Gm.
A.F.	Manic depressive, manic type	3.6 Gm.
M.P.	Schizophrenic reaction, paranoid	2.4 Gm.
V.M.	Schizophrenic reaction, schizoaffective type	4.8 Gm.
P.S.	Schizophrenic reaction, paranoid	2.4 Gm.
N.W.	Schizophrenic reaction, catatonic	2.4 Gm.
A.I.	Schizophrenic reaction, paranoid	4.8 Gm.

When first referred to O. T. Miss F. appeared to be in a very regressed state. She was mute, apathetic, and wore a blank expression. When offered crayons and paper she ate the crayons. She next made innumerable attempts to eat modeling clay, ceramic pieces, bingo cards, pencils and erasers. At times she wandered about restlessly. The piano and volley ball both aroused her attention briefly; she developed a habit of spitting on all such equipment.

The second week in O. T. Miss F. began showing slight improvement. She seemed bewildered, as though she realized that some kind of response was expected of her. Her moods alternated between restlessness and extreme lethargy. Occasionally her attention could be captured for a few moments by a game of ball but she lapsed very often into a stuporous condition.

The third week she showed greater improvement. For the first time she smiled and even talked a little. She painted her nails and asked for lipstick. She began to take pride in her personal appearance. She also showed an interest in group games. Her alertness and responsiveness improved remarkably. She now appears to be in relatively good contact, talks pleasantly, and takes part with enthusiasm in all group activities.

For the past few weeks Miss F. has adjusted well to the necessity of receiving less individual attention from the therapists than she enjoyed previously. She works independently at simple activities and is good humored and sociable toward the other patients. Her learning ability seems somewhat limited. In order to learn any new activity she requires constant supervision. She seems fairly alert and very interested in her personal appearance. She does not hesitate to express her wishes and preferences verbally. Although she will not initiate a conversation, she welcomes the opportunity to respond when questioned. She does not always answer relevantly. She knows, for instance, that this is the month of August, but she does not know whether it is morning or afternoon, or what time she eats any of her meals. She knows that she is in Lexington, Kentucky but she believes she has been here only a month.

Case 2: V. M. Age 38.
Schizophrenic reaction, schizoaffective type.
Admitted—June 5, 1954.
First visit to O. T.—August 11, 1955.
Report dated—October 15, 1955.

Mrs. M. has shown slow but steady improvement since her first visit to O. T. At that time she was withdrawn and had a noticeably flattened affect. She spoke only when addressed. She has always been cooperative and interested in group activities, but she performs in an extremely slow, awkward manner. Lately she has become talkative. Her speech is slow but coherent. She often talks about her family and frequently mentions that she is suing her husband for a divorce. She worries about not having any money with which to pay for her room and board at the hospital. She feels obligated financially to O. T. too, and these "expenses." She seems to have a patient, gentle disposition, and is generous in her attitude toward the others. She has achieved some insight into her illness; she realizes that she is sick, that it is a "nervous" disorder, that she was much sicker at one time, and that she has begun to improve.

Case 3: Mrs. M. Age 47. Chronic Brain Syndrome associated with CNS syphilis, with manic type psychosis.
Admitted—December 4, 1954.
First visit to O. T.—August 8, 1955.
Report dated—August 29, 1955.

Mrs. M. came to O. T. for two weeks before being transferred to a job in the laundry. While assigned to O. T. she was always pleasant, appreciative and willing to come. She seemed well acquainted with other patients and enjoyed group activities. She gives the impression of being an easy-going, good-natured individual who likes to "socialize." She learns new games and skills easily. Her sense of humor is notable. She enjoys a "good laugh" once in a while, after which she is always quick to explain why she laughed.

Mrs. M. subsequently moved to an industrial job, continuing well after medication, and was discharged.

Conclusion

Quiactin is a tasteless drug of low toxicity which appears pleasant to take. It seems to improve the behavior of irritable patients to an extent that cannot be explained by chance. Its best results seemed to be in cerebral arteriosclerotics, and it is believed that the drug offers much hope in these cases and in the milder psychiatric disorders. The oral dose is 0.8 Gm. to 4.8 Gm. per day.

Author's Note: Quiaction is the trademark of The Wm. S. Merrell Company, Cincinnati 15, Ohio, for its brand of oxanamide (2-ethyl-3-propylglycidamide).

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Proceedings of the Eastern Psychiatric Research Association

A NEW SUCCINYLCHOLINE TECHNIC

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Psychiatrists have found succinylcholine (SCC) a great help in electroshock therapy (EST).

Many psychiatrists are so afraid of the effects of SCC, that they employ anesthetists when using it. The reason they are afraid of SCC is that they feel unable to manage the apnea which may result from its administration.

SCC, given quickly intravenously, produces its full effect in about 30 seconds. A patient receiving such medication will, within ten seconds, complain of dizziness, diplopia, throat pain, etc. and be partially paralyzed and apneic. If the operator waits another 15 to 20 seconds to allow full muscular relaxation to develop before producing the convulsion, the patient will remember these extremely unpleasant sensations and refuses further treatment.

The most common technic to overcome this SCC-anxiety has been to administer an ultra-short acting barbiturate (USAB) in conjunction with the SCC.[1] This is given either before the SCC—the two-syringe technic, or with the SCC—the one-syringe technic. Of these two methods, the two-syringe technic although more cumbersome is better. With the one-syringe technic if the EST is not given soon enough after the injection, anxiety still occurs in some patients.

Although the use of an USAB almost fully solves the SCC-anxiety problem, it prolongs the apnea. Barbiturates are strong central respiratory depressants capable of producing severe reactions, including death. With the prolongation of the apnea, the need of the anesthetist becomes greater. The anesthetist, trained at the operating table where there is need of full abdominal muscle relaxation, is used in administering large doses of SCC and, in the main, has transferred this technic of full muscle relaxation to convulsive therapy. The use of large doses of SCC greatly prolongs the dreaded apnea and makes the psychiatrist happy to turn the chore of resuscitation to the anesthetist.

A number of psychiatrists who have used SCC, including one of the early pioneers, Neville Murray[2] of Texas, have felt that it is not without danger for the patient to receive both barbiturate and SCC, and they have steadfastly advocated the use of SCC without barbiturates. They have also advocated the use of small doses of SCC, feeling, and correctly so, that in convulsive therapy it is not necessary to completely paralyze the patient in order to prevent orthopedic complications. Murray, using small doses of SCC, found that most patients breathe quickly after the EST, and had no need for the resuscitative procedures except for the simple administration of oxygen under pressure in some patients. In spite of his statement that, if the EST is properly timed, the patient does not develop anxiety, most psychiatrists are unable to eliminate anxiety when using this technic, and they continue to use SCC in combination with an USAB.

We have used SCC with and without an USAB. In our private practice in the last six months, we have used only the Murray method of SCC administration. With this method we found that anxiety could be avoided in all patients if EST was given within ten seconds of the injection. In our use of this method we found one disadvantage. The full effect of the SCC was not developed at the time the EST was given. To overcome this difficulty, we decided to administer ten seconds from the SCC injection an amnesia producing petit mal stimulation and follow twenty seconds later with the grand mal stimulation.

Our method of SCC administration is as follows. All patients receive 1/75 of a grain of atropine orally or intramuscularly one-half hour before treatment, or intravenously at the time of treatment before each treatment. Prior to the first treatment the patient is given a 5 mg. test dose of SCC in order to estimate the therapeutic dose.[1]

To produce the amnesia as well as the grand mal, we have employed the Reiter AC instrument, Model Molac II.[3] This machine employs a new principle which consists of initiating the current surge at 195 volts for a few milliseconds, and continuing with a voltage of 95 for the duration of the convulsive current. The current change is automatic. The initial high voltage serves to render the patient amnesic and thus automatically prevents the patient from feeling the current and developing anxiety. The Molac II seems to be especially suited for this purpose and is extremely simple to use.

In using this instrument with our present technic ten seconds after the injection of SCC (with the current selective switch in "high" position), we press the treatment button and immediately release it. The patient has a slight muscular spasm. His hands may come up to his face and he may try to say something. He then stays in what may be described as suspended animation, with his eyes closed, not breathing, and not responding to questions. Twenty seconds later the convulsion is given. This convulsion is characterized by an extremely soft tonic phase.

This method of SCC administration yields these advantages: complete amnesia; no anxiety; full muscular relaxation; earlier return of breathing with either no apnea or apnea of very short duration —not requiring the administration of oxygen under pressure; need of less SCC—8 to 10 mg. The procedure can be easily mastered by the psychiatrist without the help of the anesthetist. We feel that this procedure further simplifies and makes safer the

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Meeting held June 7, 1956 at New York, New York.

administration of SCC and clearly demonstrates that in EST only small doses of SCC are needed to produce the desired result.

Author's Note:

The Succinylcholine (Anectine) used in this investigation was kindly supplied by Dr. William P. Colvin of Burrough, Wellcome & Co., Inc.

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New York, N. Y.

SOME ASPECTS OF CHLORPROMAZINE TREATMENT WITH REFERENCE TO THE PROBLEM OF DEPRESSION.

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Between September 1954 and December 1955, 1520 patients were treated with chlorpromazine hydrochloride at Manhattan State Hospital. The greatest number were schizophrenics (1,040), with the others being divided among 26 diagnostic groups. Of this group 516 (33.8%) had been hospitalized less than one year before treatment, 435 (28.7%) from one to five years, and 572 (37.5%) more than five years. About one-half had been unsuccessfully treated before with other therapeutic modalities.

The dose range of chlorpromazine was between 25 mg. and 1,200 mg. daily, divided into three doses, administered orally or occasionally intramuscularly. The median dose was 300 mg. daily (705 patients). A majority of male patients required less than this amount.

The most important side effects noted in order of frequency were Parkinson symptoms—117 patients (107 female and 10 male) or 7.6%; skin rash—71 patients (50 female and 21 male) or 4.6%; cardiovascular effects—28 patients (15 female and 13 male) or 1.8%; edema of the face and ankles—27 patients (22 female and 5 male) or 1.7%; jaundice—19 patients (17 female and 2 male) or 1.2%; convulsive seizures—17 patients (6 female and 11 male) or 1.1%.

Parkinson symptoms resembled the classical neurological disease, although recent reports claim this to be a "neurotoxic" phenomenon.[1] These symptoms were not related to the dose of chlorpromazine used but rather to the duration of treatment. They appeared with increasing frequency towards the third to sixth month and infrequently thereafter. The concomitant use of anti-Parkinson agents eliminated these symptoms.

Skin rash occurred most often within the first two months and infrequently thereafter. The data showed this complication to be present more often at the higher dose—26 patients at 150 mg. daily, and 39 at 300 mg. daily.

Jaundice rarely occurred after the eighth week of treatment. While it was twice as frequent at the 300 mg. level than at 150 mg., the figures were too small to allow any generalization.

The clinical results were as follows:

332 (229 female and 103 male) patients were placed on convalescent care status or discharged.

95 (39 female and 56 male) patients were much improved.

820 (543 female and 277 male) patients were improved.

264 (83 female and 181 male) patients were unchanged.

12 (7 female and 5 male) patients died during the treatment period of unrelated causes.

The end results were definitely related to the duration of hospitalization before treatment. Of the patients released from the hospital, 237 had been hospitalized less than one year before treatment, 47 from one to three years, 26 from three to five years, 19 from five to ten years, and three more than 10 years. It was, nevertheless, still possible to effect some improvement in the condition of 181 (77.6%) of 233 patients ill more than 10 years. One patient was placed on convalescent care status after a hospitalization lasting 30 years.

There were 45 of 47 patients (36 female and 9 male) of the entire group, with a main complaint of depression. The diagnoses were mostly involutional melancholia (31 patients). The depression was accompanied by agitation in 39 patients, while six were apathetic, adynamic and withdrawn. The dose of chlorpromazine in this group ranged from 100-600 mg. daily, with male patients receiving the lower dose (100-250 mg. per day), and 22 of 39 females from 300-600 mg. per day. Twenty-four patients were treated up to five months with the remainder as long as 14 months. Fifteen patients were discharged, 22 were improved and eight were unchanged. The clinical results were best in those patients hospitalized the shortest period of time before treatment.

Female patients required higher doses of chlorpromazine and showed more side reactions. Although the ratio of females to males in this study was about 3 to 2, the incidence of jaundice was 8.5 to 1. It was 10.7 to 1 in the case of Parkinson symptoms. The clinical results showed the ratio of convalescent care or discharge between female and male patients to be 2.2 to 1. The decision for discharge was made by the clinical director, an independent observer, unrelated to the research team. Validation of these findings for the group as a whole was evident even in the small sample of 138 patients on the admission service. The side reactions here were more frequent among females, and of 75 patients discharged, 50 were female.

It was also of interest to observe that patients who achieved the best results did so on a lower dose than those who merely improved or were unchanged. The more severely ill patients required th highest doses of chlorpromazine, notwithstanding the fact that the end result was merely an amelioration of their clinical condition. This would sug-

gest that in psychoses we are dealing with a quantitative metabolic defect, becoming greater with time and which eventually may reach an irreversible stage. Chlorpromazine in this sense, while not specific (Rauwolfia apparently can be considered in a similar fashion), acts similarly to the diabetic's insulin. It would not seem that chlorpromazine acts directly on the central nervous system, but more probably via one or several intermediary metabolites. Direct action would imply an immediate response. Such a relationship does not exist here, for days, weeks and months must frequently elapse before any therapeutic effect is noted. Chlorpromazine most likely influences disordered extracerebral metabolic cycles. The central nervous system would be secondarily influenced.

The better clinical response and greater incidence of side reactions among females leads to a concept that hormonal factors may be operating. This hypothesis has already been tested, for at the International Meeting on Chlorpromazine, held in Paris in October 1955, a paper was presented describing the treatment of male patients with chlorpromazine plus estrogen.[2] It was claimed that the results were better than with chlorpromazine alone. Kris[3] has made similar observations.

In examining the chemical structure of the sex hormones, a similarity is obvious not only between androgens and estrogens, but with the adrenal cortical hormones and bile salts as well. Cholesterol is thought to be the anlage of these steroids, although exact evidence for this relationship is still lacking. It is tempting to speculate further that the steroids may represent a source of serotonin, since removal of the two benzine rings leaves a structure, which with the addition of "N-H," would strongly resemble serotonin.

Since one of the main sites of cholesterol metabolism is the liver,[4] it is not unreasonable to suggest that some defective metabolic process in this organ may bear a role in the genesis of disordered human behavior.

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BOOK REVIEWS

ETIOLOGY OF CHRONIC ALCOHOLISM by Oskar Diethelm, M.D., Professor of Psychiatry, Cornell University Medical College. Cloth. Pp. 229. Charles C. Thomas, Springfield, Illinois, 1956.

This volume comprises a collection of articles written for investigators from the medical, biological, psychological and social fields, who are interested in the problems of alcoholism and its causes. It is edited and introduced by Doctor Oskar Diethelm.

In her paper, "Psychopathology and Character Structure in Chronic Alcoholism," Doctor Mary Jane Sherfer reports the results of a study of the underlying psychopathology and character structure in patients with chronic alcoholism. Psychiatric case history material was obtained from the records of 161 cases of alcoholic patients at the Payne Whitney Clinic. A carefully designed program of analysis of these cases was made as part of a five-year research program sponsored by the National Research Council. Doctor Sherfer concluded from her study that alcoholism is not a single entity or disease, but a symptom associated with several illnesses or syndromes. For proper understanding and treatment of the alcoholic patient, an adequate differential diagnosis is necessary.

In a lengthy paper with emphasis on physiological causes of alcoholism, Doctor M. Freile Fleetwood studied the significance of the emotions of anxiety, tension, and resentment in relation to alcohol consumption in chronic alcoholic patients. He found that anxiety is accompanied by the presence in the blood of a substance similar to nor-epinephrine, and that the concentration of the "anxiety substance" corresponded to the intensity of the emotional reaction. On the other hand, the emotion of tension produces a cholinergic-like substance which was marked in normal and psychiatric substance, but was completely abolished in alcoholic patients. A "resentment substance" was found which produced contractions on the rabbit duodenum previously treated with hyoscyamine. This substance was reduced significantly in alcoholic patients after ingestion of alcohol.

"Familio and Personal Background of Chronic Alcoholics," by Doctor Manfred Bleuler, is a paper devoted to the systematic research on the families and premorbid personalities of alcoholic patients. In the cases observed during the Payne Whitney study, Doctor Bleuler was unable to separate the hereditary from the environmental influences. There is no evidence that alcoholism causes epilepsy or oligophrenia, there are no stress factors common to the basic etiology of alcoholism and schizophrenia and the genetics of alcoholism are closely related to the genetics of abnormal personality developments. Doctor Bleuler discusses the important endocrinopathies seen clinically in alcoholics. He points out, however, that these are not evident in all cases of alcoholism. He believes that these disturbances cause a disposition toward alcoholism by virtue of the changing metabolism and by the indirect action on the emtoion. In a second paper,

Doctor Bleuler confirms his original findings by reporting the results of his own stury of alcoholic patients at the University of Zurich Psychiatric Clinic, Burgholzli.

An interesting anthropological study completes the book. Doctor Milton L. Barnett ably discusses the various sociological and cultural factors which account for the fact that the instance of chronic alcoholism is low and alcoholism as a social problem is relatively unimportant amongst the Cantonese population of New York City.

This book provides interesting and stimulating reading to the research worker in this field. Far-reaching conclusions and generalizations were carefully avoided in the presentation of the material. The main mission, which is successfully accomplished by the authors, is to offer the reader promising leads for further investigation.

William W. Zeller, M.D.

EVERY OTHER BED by Mike Gorman. The World Publishing Co., Cleveland, Ohio. $4.00. P. 318.

This book by the Executive Director of the National Mental Health Committee represents a studied, albeit strident, plea for a vast increase in psychiatric research, training of sufficient qualified personnel, and adequate care for the mentally ill. The author has put much study and hard work into this opus and is well versed in what is being done in the field. He pulls no punches; it is written, as he states, with an "angry note of impatience" meant to arouse the public to the parlous state of psychiatric research and training in this country.

He decries the deplorable conditions of the state mental hospitals and the great need for more staff, facilities and funds. He illustrates in cold figures the wisdom, as well as the economic value, of medical research. He points out the recent significant advances in chemotherapy and reviews briefly the research progress against the major mental illnesses, the great emphasis being on the physiological factors in the causation of these. He rightly indicates the need for greater and more valid scientific clinical research, the control of variables, more exactitude of data, and the need for more precise diagnostic criteria.

The book is aimed at the general public and should serve to arouse many to action. There is no doubt about the need for greater public interest and support in the fight against mental illness. The author is angry and impatient throughout and there are many things in the book which will probably offend and anger some of the present workers in this field. He is especially vitriolic in his attack on psychoanalytic "cultism." It seems to this reviewer as though this much-needed work might have been presented in more moderate fashion. It does represent a dedicated effort to aid the mentally ill, however, and it should be read by every citizen.

Chester F. Cullen, M.D.

CLINICAL EXAMINATIONS IN NEUROLOGY: By Members of the Sections of Neurology and Section of Physiology, Mayo Clinic and Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester, Minn. Cloth. $7.50. Pp. 370 with 76 illustrations. W. B. Saunders Company, West Washington Square.

The book offers a broad understanding of the newer and more essential components of the neurologic examination and parallels their respective techniques to their practical application.

In addition to the presentation of fundamentals, the book uniquely provides practical chapters on the techniques of neurological examination of cerebral integration of motor function, interpretation and grading of the reflexes, the thalamic role in sensory appreciation as well as comprehensive evaluation of the major categories of mental function.

The exhaustive chapters on neuro-ophthalmology, on electro-encephalography, on electromyography, as well as the expository chapter on the biochemical and pharmacological diagnostic aids in neurologic diagnosis graphically present systematized source material which the serious student of neurology should welcome as an authorative source.

In a simple language as it can portray with consistency, the book has masterfully developed the fundamental applications to the intricacies of the clinical examination in neurology.

Lewis J. Siegal, M.D., LL.B.

THE NEUROSES IN CLINICAL PRACTICE: By Henry P. Laughlin, M.D., Assistant Clinical Professor of Psychiatry, George Washington University School of Medicine. Cloth. $12.50. Pp. 802. W. B. Saunders Company, West Washington Square, Phila. 5, Penna.

The book deals in a thoroughgoing manner with the clinical aspects of diagnosis, symptomatology and relationship between the varying patterns of the neuroses, as well as their therapeutic approach. The book is replete with illustrative case material. Though interspersed with verbosity, the author's occasional areas therein may be indulgently ascribed to the zealousness of his overcompensatory efforts to fixate points of view and postulates beyond optimum requirements. The volume contains upward of 800 pages, includes a 52-page well-organized index of subjects, is clearly written in easily understandable language, and my be consulted with profit by the initiate, the more advanced student, as well as the medical practitioner concerned with, or engaged in the specialty of psychiatry.

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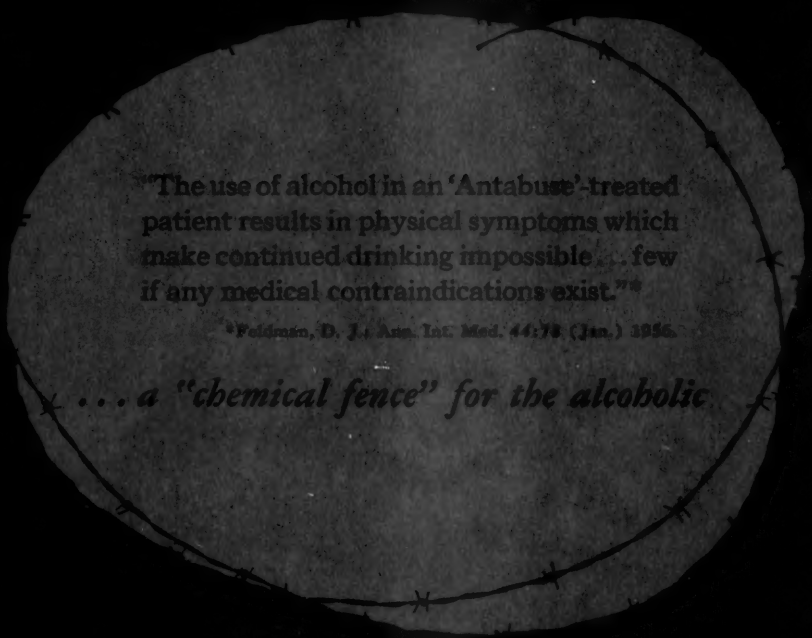
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*Feldman, D. J.: Ann. Int. Med. 44:78 (Jan.) 1956.
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